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THE JOURNAL
OF
MENTAL SCIENCE.

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VOL. LVII.



LONDON :

J. & A. CHURCHILL,
7, GREAT MARLBOROUGH STREET.

MDCCCXI.

' In adopting our title of the *Journal of Mental Science*, published by authority of the Medico-Psychological Association, we profess that we cultivate in our pages mental science of a particular kind, namely, such mental science as appertains to medical men who are engaged in the treatment of the insane. But it has been objected that the term mental science is inapplicable, and that the term mental physiology or mental pathology, or psychology, or psychiatry (a term much affected by our German brethren), would have been more correct and appropriate; and that, moreover, we do not deal in mental science, which is properly the sphere of the aspiring metaphysical intellect. If mental science is strictly synonymous with metaphysics, these objections are certainly valid; for although we do not eschew metaphysical discussion, the aim of this JOURNAL is certainly bent upon more attainable objects than the pursuit of those recondite inquiries which have occupied the most ambitious intellects from the time of Plato to the present, with so much labour and so little result. But while we admit that metaphysics may be called one department of mental science, we maintain that mental physiology and mental pathology are also mental science under a different aspect. While metaphysics may be called speculative mental science, mental physiology and pathology, with their vast range of inquiry into insanity, education, crime, and all things which tend to preserve mental health, or to produce mental disease, are not less questions of mental science in its practical, that is in its sociological point of view. If it were not unjust to high mathematics to compare it in any way with abstruse metaphysics, it would illustrate our meaning to say that our practical mental science would fairly bear the same relation to the mental science of the metaphysicians as applied mathematics bears to the pure science. In both instances the aim of the pure science is the attainment of abstract truth; its utility, however, frequently going no further than to serve as a gymnasium for the intellect. In both instances the mixed science aims at, and, to a certain extent, attains immediate practical results of the greatest utility to the welfare of mankind; we therefore maintain that our JOURNAL is not inaptly called the *Journal of Mental Science*, although the science may only attempt to deal with sociological and medical inquiries, relating either to the preservation of the health of the mind or to the amelioration or cure of its diseases; and although not soaring to the height of abstruse metaphysics, we only aim at such metaphysical knowledge as may be available to our purposes, as the mechanician uses the formularies of mathematics. This is our view of the kind of mental science which physicians engaged in the grave responsibility of caring for the mental health of their fellow-men may, in all modesty, pretend to cultivate; and while we cannot doubt that all additions to our certain knowledge in the speculative department of the science will be great gain, the necessities of duty and of danger must ever compel us to pursue that knowledge which is to be obtained in the practical departments of science with the earnestness of real workmen. The captain of a ship would be none the worse for being well acquainted with the higher branches of astronomical science, but it is the practical part of that science as it is applicable to navigation which he is compelled to study."—Sir J. C. Bucknill, M.D., F.R.S.

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 1909. W. Bevan-Lewis, M.Sc., L.R.C.P., Medical Director, West Riding Asylum, Wakefield.
 1910. John Macpherson, M.D., F.R.C.P. Edin., Commissioner in Lunacy, 8, Darnaway Street, Edinburgh.

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 1881. Benedikt, Prof. M., Franciskaner Platz 5, Vienna.
 1907. Bianchi, Prof. Leonardo, Manicomio Provinciale di Napoli. (*Corr. Mem.*, 1896.)
 1900. Blumer, G. Alder, M.D., L.R.C.P. Edin., Butler Hospital, Providence, U.S.A. (*Ord. Mem.*, 1890.)
 1900. Bresler, Johannes, M.D., Oberarzt, Lublinitz, Silesia. (*Corr. Mem.*, 1896.)
 1881. Brosius, Dr., Bendorf-Sayn, near Coblenz, Germany.
 1876. Browne, Sir J. Crichton-, M.D. Edin., LL.D., F.R.S., Lord Chancellor's Visitor, Royal Courts of Justice, Strand, W.C. (PRESIDENT, 1878.)
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1880. Motet, M., 161, Rue de Charonne, Paris.
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1909. Obersteiner, Dr. Heinrich, Professor of Neurology, The University, Vienna.
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1900. Ritti, Ant., 68, Boulevard Exelmans, Paris. (*Corr. Mem.*, 1890.)
1887. Schüle, Heinrich, M.D., Illenau, Baden, Germany.
1881. Tamburini, A., M.D., Reggio-Emilia, Italy.
1901. Toulouse, Dr. Edouard, Directeur du Laboratoire de Psychologie expérimentale à l'Ecole des Hautes Etudes Paris et Médecin en chef de l'Asile de Villejuif, Seine, France.
1910. Trevor, Arthur Hill, B.A.Oxon., of the Inner Temple, Barrister at Law, Commissioner in Lunacy, 4, Albemarle Street, London, W.
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1891. Adair, Thomas Stewart, M.D., Ch.M.Edin., Medical Superintendent, Storthes Hall Asylum, Kirkburton, near Huddersfield. (*Hon. Sec. N. and M. Division since 1908.*)
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1868. Adams, Josiah O., M.D.Durh., F.R.C.S.Eng., J.P., 117, Cazenove Road, Stamford Hill, N.
1886. Agar, S. Hollingsworth, jun., B.A.Cantab., M.R.C.S.Eng., Hurst House, Henley-in-Arden.
1905. Alcock, Benjamin James, M.A., M.B., Ch.B.Aberd., James Murray's Royal Asylum, Perth.
1869. Aldridge, Chas., M.D.Aber., L.R.C.P.Lond., Bellevue House, Plympton, Devon.
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1908. Anderson, James Richard Sunner, M.B., Ch.B.Glas., Senior Assistant Medical Officer, Cumberland and Westmorland Asylum, Garlands, Carlisle.
1900. Anderson, John Sewell, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Hull City Asylum, Willerby, near Hull.
1909. Anderson, John Theodore, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Senior Assistant Medical Officer, Hospital for the Insane, Claremont, West Australia.
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1901. Baskin, J. Loughed, L.R.C.P.&S.Edin., L.F.P.S.Glas., Fisherton House, Salisbury.
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1864. Bayley, Joseph, M.R.C.S.Eng., Medical Superintendent, St. Andrew's Hospital, Northampton.
1893. Bayley, Joseph Herbert, M.B., C.M.Edin., L.R.C.P.Lond., Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1907. Bazalgette, Sidney, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Fishponds Asylum, Bristol.
1874. Beach, Fletcher, M.B., F.R.C.P.Lond., *formerly Medical Superintendent, Darenth Asylum, Dartford*; Stresa, Fanfare Road, Coulsdon, Surrey. (*Secretary Parliamentary Committee, 1896-1906. General Secretary, 1889-1896. PRESIDENT, 1900.*)
1892. Beadles, Cecil F., M.R.C.S., L.R.C.P.Lond., The Clergy House, Indlefield Green, Surrey.
1902. Beale-Browne, Thomas Richard, M.R.C.S.Eng., L.R.C.P.Lond., Medical Staff, South Nigeria, West Africa.
1896. Beamish, George, L.R.C.S.I., L.R.C.P.E., L.M., Hillerist, Kingsdown, Deal.
1909. Beeley, Arthur, M.Sc.Leeds, M.B., B.S.Lond., D.P.H.Camb. (*Assistant Medical Officer, E. Sussex Educational Committee*), 14, Park Avenue, Keighly, Yorks.
1911. Bell, G. Emslie, M.B., Ch.B.Edin., Assistant Medical Officer, Stirling District Asylum, Larbert.
1899. Beresford, Edwyn H., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Tooting Bec Asylum, Tooting, S.W.
1879. Bevan-Lewis, William, M.Sc.Leeds, M.R.C.S., L.R.C.P.Lond., Elsmore, Dyke Road Avenue, Brighton. (*PRESIDENT, 1909-10.*)
1894. Blachford, James Vincent, M.D., B.S.Durham, M.R.C.S., L.R.C.P.Lond., 87, Belvedere Road, Upper Norwood, S.E.
1908. Blackmore, Humphrey, P., M.D.St. And., M.R.C.S.Eng., L.S.A., Physician, Salisbury Infirmary.
1898. Blair, David, M.A., M.D., C.M.Glasg., County Asylum, Lancaster.
1857. Blandford, George Fielding, M.D.Oxon., F.R.C.P.Lond., Woodlands, Camden Park, Tunbridge Wells. (*PRESIDENT, 1877.*)
1897. Blandford, Joseph John Guthrie, B.A., D.P.H.Camb., M.R.C.S.Eng., L.R.C.P.Lond., Senior Assistant Medical Officer, County Asylum, Whittingham, Preston, Lancs.
1908. Blandy, Gurth Swinnerton, M.B., Ch.B.Edin., Assistant Medical Officer, Middlesex County Asylum, Napsbury, Herts.
1904. Bodvel-Roberts, Hugh Frank, M.A.Cantab., M.R.C.S., L.R.C.P.Lond., Middlesex County Asylum, Napsbury, near St. Albans, Herts.
1900. Bolton, Joseph Shaw, M.D., B.S., B.Sc.Lond., F.R.C.P., Medical Superintendent, West Riding Asylum, Wakefield.
1892. Bond, Charles Hubert, D.Sc., M.D., Ch.M.Edin., Medical Superintendent, London County Asylum, Long-Grove, Epsom. (*Hon. General Secretary since 1906.*)
1877. Bower, David, M.D.Aber., Springfield House, Bedford. (*Chairman, Parliamentary Committee, 1907-1910.*)
1877. Bowes, John Ireland, M.R.C.S.Eng., L.S.A., Medical Superintendent, County Asylum, Devizes, Wilts.
1893. Bowes, William Henry, M.D., B.S.Lond., F.R.C.S.Eng., Medical Superintendent, Plymouth Borough Asylum, Ivybridge, Devon.
1900. Bowles, Alfred, M.R.C.S., L.R.C.P.Lond., 10, South Cliff, Eastbourne.
1896. Boycott, Arthur N., M.D.Lond., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Herts County Asylum, Hill End, St. Albans, Herts. (*Hon. Sec. for S.-E. Division, 1900-05.*)
1898. Boyle, A. Helen A., M.D.Bru., L.R.C.P.&S.Edin., 3, Palmeira Terrace, Hove, Brighton.
1883. Boys, A. H., L.R.C.P.Edin., M.R.C.S.Eng., The Grange, St. Peter's Street, St. Albans.
1891. Braine-Hartnell, George, M. P., L.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, County and City Asylum, Powick, Worcester.
1881. Brayn, R., L.R.C.P.Lond., Gledholt, Hereford Road, Southsea.

1895. Briscoe, John Frederick, M.R.C.S.Eng., Resident Medical Superintendent, Westbrooke House Asylum, Alton, Hants.
1905. Brown, Harry Egerton, M.D., Ch.B.Glasg., M.P.C., West Koffies Asylum, Pretoria, S. Africa.
1904. Brown, Josephine, M.B.Lond., Pan's Field, Hadley, Hants.
1908. Brown, Robert Cunyngham, M.D.Durb., Deputy Medical Officer, H.M. Prison, Parkhurst, Isle of Wight.
1908. Brown, R. Dods, M.D., M.R.C.P.Edin., D.P.H., Senior Assistant Physician, Royal Asylum, Morningside, Edinburgh.
1908. Brown, Ralph, M.R.C.S., L.R.C.P.Lond., The Hall, Headcorn, Kent.
1893. Bruce, Lewis C., M.D., F.R.C.P.Edin., Medical Superintendent, District Asylum, Druid Park, Murthly, N.B. (*Hon. Sec. for Scottish Division, 1901-1907.*)
1892. Bullen, Frederick St. John, M.R.C.S.Eng., 3, Richmond Park Road, Clifton, Bristol.
1908. Bullmore, Charles Cecil, J.P., L.R.C.P.&S.Edin., L.F.P.S.Glas., Medical Superintendent, Flower House, Catford.
1904. Burrell, Arthur Ambrose, B.A., M.B., B.Ch.Dubl., Carrick Manor, Monkstown, Co. Dublin.
1910. Cahir, John P., M.B., B.Ch., B.A.O. (R.U.I.), Assistant Medical Officer, Borough Asylum, Humberstone, Leicester.
1891. Caldecott, Charles, M.B., B.S.Lond., M.R.C.S., Medical Superintendent, Earlswood Asylum, Redhill, Surrey.
1889. Calcott, James T., M.D., B.S.Durb., M.R.C.S.Eng., Medical Superintendent, Borough Asylum, Newcastle-on-Tyne.
1894. Campbell, Alfred Walter, M.D.Edin., Macquarie Chambers, 183, Macquarie Street, Sydney, New South Wales.
1909. Campbell, Donald Graham, M.B., Ch.M.Edin., 30, North Street, Elgin.
1880. Campbell, Patrick E., M.B., C.M.Edin., Medical Superintendent, Metropolitan Asylum, Caterham.
1897. Campbell, Robert Brown, M.B., C.M.Edin., Medical Superintendent, Stirling District Asylum, Larbert. (*Secretary for Scottish Division from 1910.*)
1905. Carre, Henry, L.R.C.P.&S.Irel., L.M., Woodilee Asylum, Lenzie, Glasgow.
1891. Carswell, John, L.R.C.P.Edin., L.F.P.S.Glasg., Certifying Medical Officer, Barony Parish, 5, Royal Crescent, Glasgow.
1874. Cassidy, D. M., M.D., C.M.McGill Coll., Montreal, D.Sc. (Public Health) Edin., F.R.C.S.Edin., Medical Superintendent, County Asylum, Lancaster.
1888. Chambers, James, M.A., M.D., R.U.I., The Priory, Roehampton. (*Co-Editor of Journal since 1905, Assistant Editor 1900-05.*)
1865. Chapman, Thomas Algernon, M.D.Glas., L.R.C.S.Edin., Betula, Reigate.
1907. Chislett, Charles G. A., M.B., Ch.B.Glasg., Assistant Medical Officer, Woodilee Asylum, Lenzie, Glasgow.
1880. Christie, J. W. Stirling, L.R.C.P.Edin., Medical Superintendent, County Asylum, Stafford.
1878. Clapham, Wm. Crochley S., M.D., F.R.C.P.Ed., The Five Gables, Mayfield, Sussex. (*Hon. Sec. N. and M. Division, 1897-1901.*)
1907. Clarke, Geoffrey, M.D.Lond., Assistant Medical Officer, London County Asylum, Long-Grove, Epsom.
1910. Clarke, James Kilian, M.B., B.Ch., B.A.O. (R.U.I.), County Asylum, Hill End, St. Alban's, Herts.
1901. Cleland, William Lennox, M.B., B.Ch.Edin., Park Side, Adelaide, South Australia.
1862. Clouston, T. S., M.D., LL.D.Edin., F.R.C.P., F.R.S.E., 26, Heriot Row, Edinburgh. (*Editor of Journal, 1873-1881.*) (PRESIDENT, 1888.)
1900. Coffey, Patrick, L.R.C.P.&S.I., District Asylum, Maryborough, Queen's Co., Ireland.
1892. Cole, Robert Henry, M.D.Lond., M.R.C.P.Lond., 25, Upper Berkeley Street, W.

1900. Cole, Sydney John, M.A., M.D., B.Ch.Oxon., Senior Assistant Medical Officer, Wilts County Asylum, Devizes.
1906. Collen, Edward Victor, M.D., B.Ch., B.A.O.Dubl., Killycomain House, Portadown, Ireland.
1906. Collier, Walter Edgar, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Kent County Asylum, Maidstone.
1903. Collins, Michael Abdy, M.D., B.S.Lond., M.R.C.S., L.R.C.P., Medical Superintendent, Ewell Colony, Epsom, Surrey.
1895. Conry, John, M.D.Aber., Fort Beaufort Asylum, South Africa.
1878. Cooke, Edward Marriott, M.D.Lond., M.R.C.S.Eng., Commissioner in Lunacy, 69, Onslow Square, S.W.
1909. Cooke, John Benson, L.R.C.S.&P.Edin. (*H.M. Prison Service*), Love Lane, Wakefield.
1910. Coombes, Percival Charles, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Surrey County Asylum, Netherne, Merstham.
1905. Cooper, K. D., L.R.C.P.&S.Edin., L.F.P.S.Glas., c/o Leopold & Co., Apollo, Bunder, Bombay.
1903. Cormac, Harry Dove, M.B., B.S.Madras, Parkside Asylum, Macclesfield.
1891. Corner, Harry, M.D.Lond., M.R.C.S., L.R.C.P., M.P.C., 37, Harley Street, W.
1905. Cotter, James, L.R.C.P.&S.E., L.F.P.S.Glas., Down District Asylum, Downpatrick.
1897. Cotton, William, M.A., M.D.Edin., D.P.H.Cantab., 231, Gloucester Road, Bishopston, Bristol.
1910. Coulon, Thomas Peter, L.R.C.P.&S.Irel., Resident Medical Superintendent, District Asylum, Monaghan.
1910. Coupland, William Henry, L.R.C.S.&P.Edin., Senior Assistant Medical Officer, Royal Albert Asylum, Lancaster.
1893. Cowen, Thomas Philip, M.D., B.S.Lond., Assistant Medical Officer County Asylum, Lancaster.
1884. Cox, L. F., M.R.C.S., Plas Caermeddyg, Llanbedr, R.S.O., Merioneth.
1893. Craig, Maurice, M.A., M.D., B.C.Cantab., F.R.C.P.Lond., 54, Welbeck Street, W. (*Hon. Secretary of Educational Committee, 1905-8.*)
1904. Crawford, William Thomson, M.B.Lond., M.R.C.S., L.R.C.P., 260, Woodborough Road, Nottingham.
1906. Creighton, John Alexander, M.B., C.M.Glasg., West Riding Asylum, Wakefield.
1897. Cribb, Harry Gifford, M.R.C.S.Eng., L.R.C.P.Lond., Senior Assistant Medical Officer, London County Asylum, Cane Hill, Coulsdon, Surrey.
1909. Crichton, Crawford S., M.B., Ch.B.Edin., Brooke Lodge, Redhill, Surrey.
1904. Cross, Harold Robert, L.S.A., Storthes Hall Asylum, Kirkburton, near Huddersfield.
1909. Crowther, Sydney Nelson, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Netherne County Asylum, Surrey.
1894. Cullinan, Henry M., L.R.C.P.I., L.R.C.S.I., Resident Medical Superintendent, Portrane House, Donabate, Co. Dublin.
1907. Daniel, Alfred Wilson, B.A., M.D., B.C.Cantab., M.R.C.S., L.R.C.P.Lond. Senior Assistant Medical Officer, London County Asylum, Hanwell, W.
1905. Darbyshire, Harold Stewart C., M.R.C.S.Eng., L.R.C.P.Lond., Grosvenor House, West Ealing, W.
1896. Davidson, Andrew, M.D., C.M.Aber., Callan Park, Sydney, N.S.W.
1891. Davis, Arthur N., L.R.C.P., L.R.C.S.Edin., Medical Superintendent, County Asylum, Exminster, Devon.
1894. Dawson, William R., M.D., B.Ch.Dubl., F.R.C.P.I., Medical Superintendent, Farnham House Asylum, Finglas, Dublin. (*Hon. Divisional Sec. for Ireland since 1902.*)
1883. De Lisle, Samuel Ernest, L.R.C.P., L.R.C.S.I., Felbrigge, Chesterton Road, Cambridge.

1901. De Steiger, Adèle, M.B.Lond., County Asylum, Brentwood, Essex.
1905. Devine, Henry, M.D., B.S., M.R.C.P.Lond., M.R.C.S., Senior Assistant Medical Officer, West Riding Asylum, Wakefield.
1904. Devon, James, L.R.C.P. & S.Edin., 6, Cathedral Square, Glasgow.
1903. Dickson, Thomas Graeme, L.R.C.P. & S.Edin., Medical Superintendent, Wye House, Buxton.
1909. Dillon, Kathleen, L.R.C.P.I., L.M., L.R.C.S.I., Assistant Medical Officer, District Asylum, Mullingar.
1905. Dixon, J. Francis, M.D., B.Ch., B.A.O., B.A.Dubl., Three Counties Asylum, Arlesley, Hitchin.
1909. Dobson, Margaret Bernard, M.D.Lond., 75, Eaton Rise, Ealing, W.
1879. Dodds, William J., M.D., D.Sc.Edin., Valkenburg, Mowbray, near Cape Town, South Africa.
1911. Donald, John Quin, L.R.C.P.&S.Edin., Medical Superintendent, Inversden Lodge Retreat, Dairsie, Cupar, N.B.
1908. Donald, Robert, M.B., Ch.B.Glas., Ashton, Plains, Airdrie, N.B.
1889. Donaldson, William Ireland, B.A., M.D., B.Ch.Univ. of Dubl., Medical Superintendent, County of London Manor Asylum, Epsom, Surrey.
1892. Donelan, John O'Connor, L.R.C.P.I., L.R.C.S.I., M.P.C., St. Dymphna's, North Circular Road, Dublin.
1899. Donelan, Thomas O'Connor, L.R.C.P. & L.R.C.S.I., Middlesex County Asylum, Napsbury, near St. Albans, Herts.
1902. Douglas, Archibald R., L.R.C.P.&S.Edin., L.F.P.S.Glas., Royal Albert Asylum, Lancaster.
1890. Douglas, William, M.D.Queen's Univ. Irel., M.R.C.S.Eng., Brandfold, Goudhurst.
1905. Dove, Augustus Charles, M.D., B.S.Durh., M.R.C.S.Eng., "Brightside," Crouch End Hill, N.
1897. Dove, Emily Louisa, M.B.Lond., 1, Vincent Square, Westminster, S.W.; University Club for Ladies, 4, George Street, Hanover Square, W.
1903. Dow, William Alex., M.D., B.S.Durh., M.R.C.S., L.R.C.P., D.P.H., H.M. Prison, Lewes.
1910. Downey, Michael Henry, M.B., Ch.B.Melb., L.R.C.P.&S.Edin., L.F.P.S. Glas., Assistant Medical Officer, Parkside Asylum, Adelaide.
1884. Drapes, Thomas, M.B.Dubl., L.R.C.S.I., Medical Superintendent, District Asylum, Enniscorthy, Ireland. (PRESIDENT-ELECT, 1910-11.)
1905. Drew, Capt. Charles Milligan, M.A., M.B., Ch.B.Glas., R.A.M.C., c/o Messrs. Holt & Co., 3, Whitehall Place, S.W.
1907. Dryden, A. Mitchell, M.B., Ch.B.Edin., Woodilee Mental Hospital, Lenzie, N.B.
1902. Dudgeon, Herbert Wm., M.D.Durh., M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer to the Egyptian Asylum, Abbassia, Cairo, Egypt.
1899. Dudley, Francis, L.R.C.P.&S.I., Senior Assistant Medical Officer, County Asylum, Bodmin, Cornwall.
1905. Dunlop, James Craufurd, M.D.Edin., F.R.C.P.Edin., M.R.C.S.Eng., Superintendent of Statistical Department, H.M. General Registry of Births, Marriages, and Deaths, Scotland.
1903. Dunston, John Thomas, M.D., B.S.Lond., Medical Superintendent, West Koppies, Pretoria.
1907. Dwyer, Patrick J., M.B., B.Ch., R.U.I., Salisbury House, Rathgar, Dublin.
1899. Eades, Albert I., L.R.C.P. & S.I., North Riding Asylum, Clifton, Yorks.
1903. Eady, George John, M.D.Bruce, M.B.Lond., M.R.C.P.Edin., M.R.C.S. Eng., 6, Roland Houses, S. Kensington, S.W.
1874. Eager, Reginald, M.D.Lond., M.R.C.S.Eng., Northwoods, near Bristol.
1906. Eager, Richard, M.B., Ch.B.Aber., Assistant Medical Officer, Devon County Asylum, Exminster.

1873. Eager, Wilson, L.R.C.P.Lond., M.R.C.S.Eng., St. Aubyn's, Woodbridge, Suffolk.
1881. Earle, Leslie, M.D.Edin., 108, Gloucester Terrace, Hyde Park, W.
1891. Earls, James Henry, M.D., M.Ch. (R.U.I.), D.P.H., L.S.A., Claremont, Loughton, Essex.
1903. East, Guy Rowland, M.B., B.S.Durb., Northumberland County Asylum, Morpeth.
1907. East, Wm. Norwood, M.D., Lond., M.R.C.S., L.R.C.P., 2, North Road, Clapham Park, S.W.
1895. Easterbrook, Charles C., M.A., M.D., F.R.C.P.Ed., Physician Superintendent, Crichton Royal Institution, Dumfries.
1895. Edgerley, Samuel, M.A., M.D., Ch.M.Edin., Medical Superintendent, West Riding Asylum, Menston, nr. Leeds.
1900. Edridge-Green, Frederic W., M.D., B.S.Durb., F.R.C.S.Eng., Hendon Grove, Hendon.
1897. Edwards, Francis Henry, M.D.Bru., M.R.C.P.Lond., Medical Superintendent, Camberwell House, S.E.
1901. Elgee, Samuel Charles, L.R.C.P., L.R.C.S.I., London County Asylum, Colney Hatch, N.
1889. Elkins, Frank Ashby, M.D.Edin., Medical Superintendent, Metropolitan Asylum, Leavesden, Herts.
1898. Ellerton, Henry B., M.R.C.S., L.R.C.P.Lond.
1873. Elliot, G. Stanley, M.R.C.P.Edin., F.R.C.S.Edin., 31, Belvedere Road, Upper Norwood, S.E.
1908. Ellis, Edward, M.D.Durb., L.R.C.S.& P.Edin., Craven House, Hopwood Lane, Halifax, Yorks.
1890. Ellis, William Gilmore, M.D.Bru., M.R.C.S.Eng., L.S.A., Superintendent, Government Asylum, Singapore.
1908. Ellison, Arthur, M.R.C.S., L.R.C.P., Deputy Medical Officer, H.M. Prison, Leeds, 120, Domestic Street, Holbeck, Leeds.
1899. Ellison, F. C., M.D., B.Ch., T.C.D., Assistant Medical Officer, District Asylum, Castlebar.
1901. Erskine, Wm. J. A., M.D., Ch.M.Edin., Senior Assistant Medical Officer, City Asylum, Nottingham.
1895. Eurich, Frederick Wilhelm, M.D., C.M.Edin., 4, Marlborough Road, Bradford.
1894. Eustace, Henry Marcus, M.D., B.Ch., B.A.T.C.D., Assistant Physician, Hampstead and Highfield Private Asylum, Glasnevin, Dublin.
1909. Eustace, William Neilson, L.R.C.S.&P.Irel., L.M., Hampstead, Glasnevin, co. Dublin.
1909. Evans, George, M.B.Lond., Assistant Medical Officer, London County Asylum, Bexley.
1891. Ewan, John Alfred, M.A.St. And., M.D.Edin., Greyness, Sleaford, Lincs.
1884. Ewart, C. T., M.D., C.M.Aberd., Senior Assistant Medical Officer, Claybury Asylum, Woodford Bridge, Essex.
1906. Ewens, George Francis William, Major I.M.S. Bengal, c/o Messrs. Grindlay & Co., 54, Parliament Street, S.W.
1907. Exley, John, L.R.C.P.I., L.M., M.R.C.S., Medical Officer, H.M. Prison; Grove House, New Wortley, Leeds.
1894. Farquharson, William F., M.D.Edin., Medical Superintendent, Counties Asylum, Garlands, Carlisle.
1907. Farries, John Stoddart, L.R.C.P., L.R.C.S.Edin., Medical Superintendent, Sandwell Hall, Handsworth, near Birmingham.
1908. Faulks, Edgar, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, London County Asylum, Bexley.
1903. Fennell, Charles Henry, M.A., M.D.Oxon, M.R.C.P.Lond., Senior Assistant Medical Officer, East Sussex Asylum, Hellingly, Sussex.
1908. Fenton, Henry Felin, M.B., Ch.B.Edin., Assistant Medical Officer, County and City Asylum, Powick, Worcester.

1907. Ferguson, J. J. Harrower, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Fife and Kinross Asylum, Cupar, Fife.
1897. Fielding, James, M.D., Victoria Univ., Canada, M.R.C.S.Eng., L.R.C.P. Edin., 18, The Crescent, Norwich.
1906. Fielding, Saville James, M.B., B.S.Durh., Bethel Street, Norwich.
1873. Finch, John E. M., M.D., Medical Superintendent, Borough Asylum, Leicester.
1889. Finch, Richard T., B.A., M.B.Cantab., Medical Superintendent, Fisherton House, Salisbury.
1882. Finegan, A. D. O'Connell, L.R.C.P.I., Medical Superintendent, District Asylum, Mullingar, Ireland. (*Hon. Sec. for Irish Division, 1898-1902.*)
1889. Finlay, David, M.D.Glasg., Medical Superintendent, County Asylum, Bridgend, Glamorgan.
1906. Firth, Arthur Harcus, M.A., M.B., B.Ch.Edin., Wadsley Asylum, near Sheffield.
1903. Fitzgerald, Alexis, L.R.C.P. & S.I., L.M., District Asylum, Waterford.
1894. Fitzgerald, Charles E., M.D., M.Ch.Dubl., F.R.C.S.I., Surgeon-Oculist to the King in Ireland, 27, Upper Merrion Street, Dublin.
1888. Fitz-Gerald, Gerald C., M.D., B.C.Cantab., M.P.C., Medical Superintendent, Kent County Asylum, Chartham, nr. Canterbury.
1908. Fitzgerald, James Francis, L.R.C.P.&S.Irel., L.M., Assistant Medical Officer, District Asylum, Clonmel, Ireland.
1899. Fitzgerald, James J., M.D., B.Ch., B.A.O. (R.U.I.), Assistant Medical Officer, District Asylum, Cork.
1904. Fleming, Wilfrid Louis Remi, M.R.C.S., L.R.C.P., Suffolk House, Pirbright, Surrey.
1894. Fleury, Eleonora Lillian, M.D., B.Ch. (R.U.I.), Assistant Medical Officer, Richmond Asylum, Dublin.
1908. Flynn, Thos. Aloysius, L.R.C.P.&S.I., Assistant Medical Officer, Portrane Asylum, Donabate.
1902. Forde, Michael J., M.D., M.Ch. (R.U.I.), Assistant Medical Officer, Portrane Asylum, Ireland.
1902. Forster, Hermann Julius, L.R.C.P.I., L.S.A., Assistant Medical Officer, Brighton Borough Asylum, Hayward's Heath.
1906. Forster, R. A., M.B., Ch.B.Aber., The Asylum, Graham's Town, Cape Colony, S. Africa.
1906. Fortune, John, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Ladywell Sanatorium, Salford.
1909. Foulerton, Alexander Grant Russell, F.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Cantab. (*County Medical Officer of Health for E. Sussex*), Middlesex Hospital, W., and Haywards Heath, Sussex.
1861. Fox, Charles H., M.D.St. And., M.R.C.S.Eng., 35, Heriot Row, Edinburgh.
1896. France, Eric, M.B., B.S.Durh., 18, Draycot Place, Cadogan Gardens, S.W.
1881. Fraser, Donald, M.D., Ch.M.Glasg., F.F.P.S., 3, Orr Square, Paisley.
1901. French, Louis Alexander, M.R.C.S., L.R.C.P., H.M. Prison, Portland, Dorset.
1902. Fuller, Lawrence Otway, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Three Counties' Asylum, Hitchin, Herts.
1906. Gane, Edward Palmer Steward, M.R.C.S.Eng., L.R.C.P.Lond., Borough Asylum, Ryehope, Sunderland.
1890. Gaudin, Francis Neel, M.R.C.S., L.S.A., M.P.C., Medical Superintendent, The Grove, St. Lawrence, Jersey.
1906. Gavin, Noel John Hay, M.B., Ch.B.Edin., Ashburn Hall, Dunedin, New Zealand.
1885. Gayton, Francis C., M.D.Aberd., M.R.C.S.Eng., Medical Superintendent, County Asylum, Netherne, Merstham, Surrey.
1908. Geale, William James, L.R.C.P.Edin., L.F.P.S.Glasg., Assistant Medical Officer, Scalebor Park, Burley-in-Wharfedale, Yorks.

1896. Geddes, John W., M.B., C.M.Edin., Medical Superintendent, County Borough Asylum, Berwick Lodge, Middlesbrough, Yorks.
1892. Gemmel, James Francis, M.B.Glasg., Medical Superintendent, County Asylum, Whittingham, Preston.
1904. Gibb, James Alex., M.B., Ch.B.Aberd., Pitmedden, Udney, Aberdeenshire.
1910. Gibson, Rae, M.B., Ch.B.Edin., M.R.C.P.Edin., Assistant Physician, Royal Asylum, Morningside, Edinburgh.
1899. Gilfillan, Samuel James, M.A., M.B.Edin., Senior Assistant Medical Officer, London County Asylum, Colney Hatch.
1910. Gilfillan, William, M.B., Ch.B.Glasg., Assistant Medical Officer, Cowdenbank, 65, Alma Street, Falkirk.
1889. Gill, Stanley, B.A.Dubl., M.D.Dubl., M.D.Durh., M.R.C.P.Lond., M.R.C.S.Eng., Shaftesbury House, Formby, Liverpool.
1904. Gillespie, Daniel, M.D. B.Ch. (R.U.I.), Wadsley Asylum, near Sheffield.
1897. Gilmour, John Rutherford, M.B., F.R.C.P.Edin., Medical Superintendent, West Riding Asylum, Scalebor Park, Burley-in-Wharfedale, Yorks.
1906. Gilmour, Richard Withers, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, St. Luke's Hospital, E.C.
1911. Gilmour, Walter, M.B., Ch.B.Glasg., Pathologist, Gartloch Asylum, Gartcosh, N.B.
1878. Glendinning, James, M.D.Glasg., L.R.C.S.Edin., L.M., Medical Superintendent, Joint Counties Asylum, Abergavenny.
1909. Gloyne, Stephen Roodhouse, M.B., B.Ch.Leeds, D.P.H.Lond. (*Assistant Medical Officer, East Sussex Educational Committee*), Elener, The Avenue, Lewes.
1898. Goldie-Scot, Thomas G., M.B., C.M.Edin., M.R.C.S., L.R.C.P., Pilmuir, Pencaitland, N.B.
1897. Good, Thomas Saxty, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Littlemore, Oxford.
1889. Goodall, Edwin, M.D., B.S.Lond., F.R.C.P., Medical Superintendent, City Asylum, Cardiff.
1899. Gordon, James Leslie, M.B., Ch.B.Aberd., Tooting Bec Asylum, Tooting, London, S.W.
- * Gordon, William S., M.A., M.B., T.C.D., District Asylum, Mullingar.
1905. Gordon-Munn, John Gordon, M.D.Edin., F.R.S.E., Heigham Hall, Norwich.
1901. Gostwyck, C. H. G., M.B., Ch.B., M.R.C.P.Edin., Stirling District Asylum, Larbert.
1894. Graham, Samuel, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Assistant Medical Officer, District Asylum, Antrim.
1887. Graham, William, M.D. (R.U.I.), L.R.C.S.Edin., Medical Superintendent, District Lunatic Asylum, Belfast.
1908. Graham, William S., M.B., B.Ch., B.A.O., R.U.I., Assistant Medical Officer, Somerset and Bath Asylum, near Taunton.
1910. Gray, Theodore Grant, M.B., C.B.Aberd., Assistant Medical Officer, Kingseat Asylum, Aberdeen.
1909. Greene, Thomas Adrian, L.R.C.S.Irel., L.M., R.C.P.Irel., Medical Superintendent, District Asylum, Carlow.
1886. Greenlees, T. Duncan, M.D.Edin., F.R.S.E., Fenstanton, Christ Church Road, Streatham Hill, S.W.
1904. Griffin, Ernest Harrison, B.A.Cantab., L.S.A.Lond., El Pèrù via San Fèlic, Venezuela.
1901. Grills, Galbraith Hamilton, M.D., B.Ch. (R.U.I.), Medical Superintendent, County Asylum, Chester.
1900. Grove, Ernest George, M.R.C.S., L.R.C.P., Bootham Park, York.
1907. Grünbaum, Helen Gertrude, M.B., Ch.B.Birm., 38, Clarendon Road, Leeds.
1894. Gwynn, Charles Henry, M.D.Edin., co-Licensee, St. Mary's House, Whitechurch, Salop.

1905. **Hallett, H. G.**, M.R.C.S., L.R.C.P.Lond., Darenth Asylum, Dartford, Kent.
1894. **Halstead, Harold Cecil**, M.D.Durh., Assistant Medical Officer, Peckham House, Peckham.
1903. **Hanbury, Langton Fuller**, M.R.C.S.Eng., L.R.C.P.Lond., West Ham Borough Asylum, Ilford, Essex.
1902. **Hanbury, Saville Waldron**, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, London County Asylum, Banstead, Surrey.
1903. **Hankin, Chella Mary**, M.B.Durh., 14, Elms Avenue, Muswell Hill, W.
1901. **Harding, William**, M.D.Edin., M.R.C.P.Lond., Medical Superintendent, Northampton County Asylum, Berry Wood, Northampton.
1899. **Harmer, W. A.**, L.S.A., Resident Superintendent and Licensee, Redlands Private Asylum, Tonbridge, Kent.
1904. **Harper-Smith, George Hastie**, B.A.Cantab., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Brighton County Borough Asylum, Haywards Heath.
1898. **Harris-Liston, L.**, M.D., M.R.C.S., L.R.C.P.Lond., L.S.A., Middleton Hall, Middleton St. George, Co. Durham.
1905. **Hart, Bernard**, M.B.Lond., M.R.C.S.Eng., Long-Grove Asylum, Epsom, Surrey.
1886. **Harvey, Bagenal Crosbie**, L.R.C.P.&S.Edin., L.A.H.Dubl., Resident Medical Superintendent, District Asylum, Clonmel.
1892. **Haslett, William John**, M.R.C.S., L.R.C.P., Resident Medical Superintendent, Halliford House, Upper Halliford, Shepperton.
1891. **Havelock, John G.**, M.D., C.M.Edin., Physician Superintendent, Montrose Royal Asylum.
1890. **Hay, Frank**, M.B., C.M., Inspector-General of Asylums for New Zealand, Government Buildings, Wellington, New Zealand.
1900. **Haynes, Horace E.**, M.R.C.S., L.S.A., The Retreat, Witham, Essex.
1895. **Hearder, Frederic P.**, M.D., Ch.M.Edin., Medical Superintendent, Yorkshire Inebriate Reformatory, Cattal, Whixley, near York.
1905. **Henderson, George**, M.A., M.B.Edin., 94, Fitzwilliam Street, Huddersfield.
1906. **Herbert, Thomas**, M.R.C.S.Eng., L.R.C.P.Lond., York City Asylum, Fulford, York.
1877. **Hetherington, Charles E.**, B.A., M.B., M.Ch.Dubl., Medical Superintendent, District Asylum, Londonderry, Ireland.
1877. **Hewson, R. W.**, L.R.C.P.&S.Edin., Medical Superintendent, Coton Hill, Stafford.
1902. **Higginson, John Wigmore**, M.R.C.S., L.R.C.P.Lond., Resident Medical Officer, Hayes Park Asylum, Hayes Park, Middlesex.
1882. **Hill, H. Gardiner**, M.R.C.S.Eng., L.S.A., Medical Superintendent, Middlesex County Asylum, Tooting.
1907. **Hine, T. Guy Macaulay**, M.A., M.D., B.C.Cantab., 37, Hertford Street, Mayfair, W.
1881. **Hitchcock, Charles Knight**, M.A., M.D.Cantab., Bootham Park, York.
1909. **Hodgson, Harold West**, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Barnsley Hall Asylum, Bromsgrove, Worcestershire.
1908. **Hogg, Archibald**, M.B., Ch.B.Glas., 23, Queen's Road, Halifax.
1900. **Holländer, Bernard**, M.D.Freib., M.R.C.S., L.R.C.P.Lond., 57, Wimpole Street, W.
1903. **Hopkins, Charles Leighton**, B.A., M.B., B.C.Cantab., York City Asylum, Fulford, York.
1894. **Hotchkis, Robert D.**, M.A.Glasg., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Renfrew Asylum, Dykebar, N.B.
1907. **Howard, S. Carlisle**, M.B., Ch.B.Aberd., Senior Assistant Medical Officer, County Asylum, Chester.
1900. **Hughes, Percy T.**, M.B., Ch.M.Edin., D.P.H.Lond., Medical Superintendent, Worcestershire County Asylum, Barnsley Hall, Bromsgrove.

1904. Hughes, William Stanley, M.R.C.S., L.R.C.P., Medical Superintendent, County Asylum, Denbigh.
1897. Hunter, David, M.A., M.B., B.C.Cantab., Medical Superintendent, West Ham Borough Asylum, Goodmayes, Ilford, Essex. (*Secretary for S.E. Division from 1910.*)
1909. Hunter, Douglas William, M.B., Ch.M.Glasg., Assistant Medical Officer, Royal Albert Asylum, Lancaster.
1904. Hunter, Percy Douglas, M.R.C.S., L.R.C.P.Lond., East Sussex County Asylum, Hellingly, Sussex.
1906. Huxley, Charles Rodney, L.R.C.P.&S.Edin., L.F.P.S.Glas., Kent House Road, New Beckenham, Kent.
1882. Hyslop, James, D.S.O., M.B., Ch.M.Edin., Natal Government Asylum, Pietermaritzburg.
1888. Hyslop, Theo. B., M.D., C.M.Edin., M.R.C.P.E., 5, Portland Place, London, W.
1908. Inglis, J. P. Park., M.B., Ch.B.Edin., Assistant Medical Officer, Metropolitan Asylum, Caterham, Surrey.
1906. Irwin, Peter Joseph, L.R.C.P.&S.I., L.M., Assistant Medical Officer, District Asylum, Limerick.
1866. Jackson, J. Hughlings, M.D.St. And., F.R.C.P.Lond., F.R.S., Physician to the Hospital for Epilepsy and Paralysis, &c., 3, Manchester Square, London, W.
1908. Jeffrey, Geo. Rutherford, M.B., Ch.B.Glas., Senior Assistant Physician, Crichton Royal Asylum, Dumfries.
1907. Jex-Blake, Bertha, M.B., Ch.B.Edin., Assistant Medical Officer, 13, Ennismore Gardens, S.W.
1910. Johnson, Cecil, M.B., Ch.B.Vict., 6, Palewell Park, East Sheen, S.W.
1905. Johnson, Smeeton, M.B.Lond., L.R.C.P., M.R.C.S., Langlands, Cleobury Mortimer, Salop.
1893. Johnston, Gerald Herbert, L.R.C.S. and L.R.C.P.Edin., Brooke House, Upper Clapton, N.
1905. Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.F.P.S.Glas., Bracebridge Asylum, Lincoln.
1878. Johnstone, J. Carlyle, M.D., C.M.Glasg., Medical Superintendent, Roxburgh District Asylum, Melrose.
1903. Johnstone, Thomas, M.D.Edin., M.R.C.P.Lond., 32, Park Square, Leeds.
1880. Jones, D. Johnston, M.D.Edin., South Haven, Beach Road, Weston-super-Mare.
1882. Jones, Robert, M.D.Lond., B.S., F.R.C.P., F.R.C.S., Medical Superintendent, London County Asylum, Claybury, Woodford, Essex. (*Gen. Secretary from 1897 to 1906.*) (*PRESIDENT 1906-7.*)
1898. Jones, W. Ernest, M.R.C.S.Eng., L.R.C.P.Lond., The Old Treasury Buildings, Spring Street, Melbourne.
1879. Kay, Walter S., M.D., C.M.Edin., M.R.C.S.Eng., Medical Superintendent, South Yorkshire Asylum, Wadsley, near Sheffield.
1886. Keay, John, M.D.Glasg., F.R.C.P.Edin., Medical Superintendent, Bangour Village, Uphall, Linlithgowshire.
1909. Keith, William Brooks, M.B., Ch.B.Aberd., Assistant Medical Officer, Kent County Asylum, Maidstone.
1909. Kellas, Arthur, M.B., Ch.B., D.P.H.Aberd., Senior Assistant Physician, Royal Asylum, Aberdeen.
1908. Kelly, Richard, M.B., B.Ch., B.A.C.Dub., Assistant Medical Officer, Storthes Hall Asylum, Kirkburton, near Huddersfield.
1898. Kemp, Norah, M.B., C.M.Glas., The Retreat, York.
1907. Keene, George Henry, M.D. (T.C.D.), Camberwell House, Peckham Road.
1911. Kennedy, Lt.-Col. Arthur (R.A.M.C.), L.R.C.P.&S.Irel., Royal Victoria Hospital, Netley.
1899. Kennedy, Hugh T. J., L.R.C.P.&S.I., L.M., Assistant Medical Officer, District Asylum, Enniscorthy, Wexford.
1902. Kennedy, Patrick Gabriel, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Assistant Medical Officer, London County Asylum, Banstead, Surrey.

1910. Kerr, G. Lawson, M.B., Ch.B.Glasg., 19, Queen Square, Regent's Park, Glasgow.
1897. Kerr, Hugh, M.A., M.D.Glasg., Medical Superintendent, Bucks County Asylum, Stone, Aylesbury, Bucks.
1902. Kerr, Neil Thomson, M.B., C.M.Ed., Medical Superintendent, Lanark District Asylum, Hartwood, Shotts, N.B.
1893. Kershaw, Herbert Warren, M.R.C.S.Eng., L.R.C.P.Lond., Dinsdale Park, near Darlington.
1897. Kidd, Harold Andrew, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, West Sussex Asylum, Chichester.
1903. King, Frank Raymond, B.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Northumberland House, Finsbury Park, N.
1897. Kingdon, Wilfred Robert, M.B., B.S.Durh., 160, Goldhawk Road, W.
1905. Kingsbury, William Neave, M.R.C.S., L.R.C.P.Lond., 15, Blackheath Rise, Lewisham, S.E.
1902. King-Turner, A. C., M.B., C.M.Edin., The Retreat, Fairford, Gloucestershire.
1899. Kirwan, James St. L., B.A., M.B., B.Ch., B.A.O. (R.U.I.), Medical Superintendent, District Asylum, Ballinasloe, Ireland.
1908. Kirwan, Richard, R., M.B., B.Ch., B.A.O. (R.U.I.), West Riding Asylum, Menston, near Leeds.
1903. Kough, Edward Fitzadam, M.B., B.Ch.Dubl., Senior Assistant Medical Officer, County Asylum, Gloucester.
1898. Labey, Julius, M.R.C.S., L.R.C.P.Lond., L.S.A., Medical Superintendent, Public Asylum, Jersey.
1902. Langdon-Down, Percival L., M.A., M.B., B.C.Cantab., Dixland, Hampton Wick, Middlesex.
1896. Langdon-Down, Reginald L., M.A., M.B., B.C.Cantab., M.R.C.P.Lond., Normansfield, Hampton Wick.
1909. Laurie, James, M.B., Ch.M.Glasg. (*Medical Officer, Smithston Asylum*), Red House, Ardgowan Street, Greenock.
1902. Laval, Evariste, M.B., C.M.Edin., 175, Kennington Road, S.E.
1898. Lavers, Norman, M.D.Bru., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Bailbrook House, Bath.
1899. Law, Charles D., L.R.C.P.&S.Edin., L.F.P.G.S., 117, Wilderspool Road, Warrington.
1892. Lawless, George Robert, F.R.C.S.I., Medical Superintendent, District Asylum, Armagh.
1870. Lawrence, Alexander, M.A., M.D.Aberd., 26, Hough Green, Chester.
1883. Layton, Henry A., M.R.C.S.Eng., L.R.C.P.Edin., Cornwall County Asylum, Bodmin.
1909. Leech, John Frederick Wolseley, M.D.Dubl., Enniscorthy, Co. Wexford.
1899. Leeper, Richard R., F.R.C.S.I., Medical Superintendent, St. Patrick's Hospital, Dublin.
1905. Le Fann, Hugh, M.B., C.M.Aber., "Victoriaborg," Accra, West Africa.
1883. Legge, Richard J., M.D., Medical Superintendent, County Asylum, Mickleover, Derby.
1906. Leggett, William, B.A., M.B., B.Ch.Dubl., Assistant Medical Officer, Royal Asylum, Sunnyside, Montrose.
1894. Lentaigue, John, B.A., F.R.C.S.I., Medical Visitor of Lunatics to the Court of Chancery, 42, Merrion Square, Dublin.
1863. Ley, H. Rooke, M.R.C.S.Eng., Beaulieu, Westhy Road, Boscombe, Hants.
1859. Lindsay, James Murray, M.D.St.And., F.R.C.S. and F.R.C.P.Edin., 53, Victoria Road, Aldershot. (PRESIDENT, 1893.)
1908. Littlejohn, Edward Salteine, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, London County Asylum, Hanwell, W.

1903. Logan, Thomas Stratford, L.R.C.P.&S.Edin., L.F.P.S.Glas., County of London Epileptic Colony, Ewell, Surrey.
1906. Long, Sydney Herbert, M.D.Cantab., Physician to Norfolk and Norwich Hospital, 37, St. Giles Street, Norwich.
1899. Longworth, Stephen G., L.R.C.P. L.R.C.S.I., County Asylum, Melton, Suffolk.
1898. Lord, John R., M.B., C.M.Edin., Medical Superintendent, London County Asylum, Horton, Epsom. (*Assistant Editor of Journal since 1900.*)
1906. Lowry, James Arthur, M.D., B.Ch., B.A.O. (R.U.I.), Medical Superintendent, Surrey County Asylum, Brookwood.
1904. Lyall, C. H. Gibson, L.R.C.P.&S.Edin., Leicester Borough Asylum, Leicester.
1906. Lyell, John Hepburn, M.D.Glasg., M.B., C.M., Assistant Medical Officer to H.M. Prison, the Royal Infirmary, and Parish Council, Perth, 15, Marshall Place, Perth.
1872. Lyle, Thomas, M.D.Glasg., 34, Jesmond Road, Newcastle-on-Tyne.
1906. Macarthur, John, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Colney Hatch Asylum, London, N.
1899. Macartney, William H. C., L.R.C.P.&S.I., Riverhead House, Sevenoaks.
1911. Macaskill, Donald Cameron, M.B., Ch.B.Edin., Assistant Medical Officer, Stirling District Asylum, Larbert, N.B.
1880. MacBryan, Henry C., L.R.C.P. & S. Edin., Kingsdown House, Box, Wilts.
1902. M'Carthy, Owen F., L.R.C.P.&S.I., District Lunatic Asylum, Cork, Ireland.
1900. McClintock, John, L.R.C.P. & L.R.C.S.Edin., Resident Medical Superintendent, Grove House, Church Stretton, Salop.
1900. McConaghey, John C., M.D., Ch.B.Edin., Senior Assistant Medical Officer, Parkside Asylum, Macclesfield, Cheshire.
1901. MacDonald, James H., M.B., Ch.R.Glasg., Govan District Asylum, Hawkhead, Paisley, N.B.
1884. MacDonald, P. W., M.D., C.M.Aberd., Medical Superintendent, Dorset County Asylum, Herrison, Dorchester. (*First Hon. Sec. S.W. Division 1894 to 1905.*) (PRESIDENT, 1907-8.)
1905. MacDonald, William Fraser, M.B., Ch.B.Edin., Olive Lodge, Polworth Terrace, Edinburgh.
1905. McDougall, Alan, M.D.Vict., M.R.C.S., L.R.C.P.Lond., Medical Director, The David Lewis Colony, Sandle Bridge, near Alderley Edge, Cheshire.
1911. McDougall, William, M.A., M.B., B.C.Cantab., M.Sc.Vict. (*Wilde Reader in Psychology, Univ. Oxf.*), Foxcombe Hill, Oxford.
1906. McDowall, Colin Francis Frederick, M.D., B.S.Durh., Senior Assistant Medical Officer, County Asylum, Cheddleton, Staffs.
1870. McDowall, Thomas W., M.D.Edin., L.R.C.S., Medical Superintendent, Northumberland County Asylum, Morpeth. (PRESIDENT, 1897-8.)
1893. Macevoy, Henry John, M.D., B.Sc.Lond., M.P.C., 19, Mowbray Road, Brondesbury, London, N.W.
1895. Macfarlane, Neil M., M.D.Aber., Medical Superintendent, Government Hospital, Thlotse Heights, Leribe, Basutoland, South Africa.
1883. Macfarlane, W. H., M.B. and Ch.B.Univ. of Melbourne, Medical Superintendent, Hospital for the Insane, New Norfolk, Tasmania.
1902. McGregor, John, M.B., Ch.B.Edin., Assistant Medical Officer, County Asylum, Bridgend, Glam.
1906. MacIlraith, Alex. Robert MacIntyre, L.R.C.P.&S.Edin., L.F.P.S.Glasg., Holly House, Rawtenstall, Lancs.
1905. MacIlraith, William MacLaren, L.R.C.P. & S.Edin., L.F.P.S.Glasg., L.D.S., Holly House, Rawtenstall, Lancs.
1909. McIntyre, Alex. Gray, M.D.Edin., Mansfield, Moncrief Avenue, Lenzie, N.B.
1899. McKelvey, Alexander Niel, L.&M.P.C.P.&S.I., Costley House, Epsom, Auckland, New Zealand.
1910. McKenzie, Ivy, M.B., Ch.B.Glasg., Director, Western Asylums Research Institute, Glasgow.

1911. Mackenzie, John Cosserat, M.B., Ch.B.Edin., Assistant Medical Officer, County Asylum, Hereford.
1891. Mackenzie, Henry J., M.B., C.M.Edin., M.P.C., Assistant Medical Officer, The Retreat, York.
1911. MacKenzie, Marion Ellen, M.B., Ch.B.Edin. (*Medical Examiner for the Board of Education*), 7, The Valley, Scarborough.
1903. Mackenzie, Theodore Charles, M.B., Ch.B.Edin., District Asylum, Inverness.
1908. MacKenzie, William Tuach, M.D., Medical Superintendent, Royal and District Asylums, Dundee.
1899. Mackeown, William John, A.B., M.B., B.Ch. (R.U.I.), Assistant Medical Officer, County Asylum, Fareham, Hants.
1910. McKillop, Alexander Cameron, M.B., Ch.B.Edin., Assistant Medical Officer, District Asylum, Inverness.
1909. MacIachlan, John Thomson, M.D.Glasg. (*Assistant Physician, Glasgow Royal Infirmary*), 310, Renfrew Street, Glasgow.
1907. MacLeod, John A., M.B., Ch.B., Assistant Medical Officer, Lochmore, Lairg, Sutherlandshire.
1901. Macleod, Neil, M.D., C.M.Edin., H.B.M. Consular Surgeon and Surgeon to the General Hospital, Shanghai, China, 12, Whangpoo Road, Shanghai.
1904. Macnamara, Eric Danvers, M.A., M.B., 54, Welbeck Street, W.
1898. Macnaughton, George W. F., M.D., F.R.C.S.Edin., M.R.C.P.Lond., 33, Lower Belgrave Street, Eaton Square, London, S.W.
1882. McNaughton, John, M.D., Tay Park, Perth, N.B.
1910. MacPhail, Hector Duncan, M.A., M.B., Ch.B.Edin., Assistant Medical Officer, Newcastle-on-Tyne.
1882. Macphail, S. Rutherford, M.D.Edin., Derby Borough Asylum, Rowditch, Derby.
1896. Macpherson, Charles, M.D.Glas., Deputy Commissioner in Lunacy, 15, Rutland Square, Edinburgh.
1901. McRae, G. Douglas, M.D.Edin., F.R.C.P., Medical Superintendent, District Asylum, Ayr, N.B.
1902. Macrae, Kenneth Duncan Cameron, M.B., Ch.B.Edin., Banford Village, Dochmont, Linlithgowshire.
1908. McWalter, William H., M.B., Ch.M.Glas., Medical Officer, H.M. Convict Prison, Peterhead.
1894. McWilliam, Alexander, M.A., M.B., C.M.Aber., Waterval, Odiham, Winchester, Hants.
1908. Mapother, Edward, M.D., B.S.Lond., F.R.C.S.Eng., Assistant Medical Officer, London County Asylum, Long-Grove, Epsom.
1903. Marnan, John, B.A., M.B., B.Ch.Dubl., Senior Assistant Medical Officer, Second County Asylum, Gloucester.
1896. Marr, Hamilton C., M.D.Glasg., Commissioner in Lunacy, 46, Murrayfield Avenue, Edinburgh. (*Hon. Sec. Scottish Division*, 1907-1910.)
1905. Marshall, Robert Macnab, M.D., Ch.B.Glasg., Gartnavel Royal Asylum, Glasgow.
1908. Martin, Henry Cooke, M.B., Ch.B.Edin., Assistant Medical Officer, Newport Borough Asylum, Caerleon.
1896. Martin, James Charles, L.R.C.S.I., L.M., L.R.C.P., Assistant Medical Officer, District Asylum, Letterkenny, Donegal.
1908. Martin, James Ernest, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, London County Asylum, Long-Grove, Epsom.
1907. Martin, Mary Edith, L.R.C.P.&S.Edin., L.F.G.S.Glas., L.S.A.Lond., 3, Palmeria Terrace, Hove, Brighton.
1911. Martin, William Lewis, M.A., B.Sc., M.B., Ch.M.Edin. (*Certifying Physician in Lunacy, Edinburgh Parish Council*), 56, Bruntsfield Place, Edinburgh.
1910. Masson, Charles Armit, M.A., M.B., Ch.B.Aberd., Assistant Medical Officer, Inverness District Asylum.
1904. May, George Francis, M.D., C.M. (McGill), L.S.A., Winterton Asylum Ferryhill, Durham.

1907. Meek, Andrew Alexander Robertson, M.B., Ch.B.Glas., 185, Dalmarloch Road, Glasgow.
1890. Menzies, William F., M.D., B.Sc.Edin., M.R.C.P.Lond., Medical Superintendent, Stafford County Asylum, Cheddleton, near Leek.
1891. Mercier, Charles A., M.D.Lond., F.R.C.P., F.R.C.S.Eng., Lecturer on Insanity, Westminster Hospital; 34, Wimpole Street, W. (*Secretary Educational Committee, 1893-1905. Chairman do. from 1905.*) (PRESIDENT, 1908-9.)
1877. Merson, John, M.A., M.D.Aber., Medical Superintendent, Borough Asylum, Hull.
1871. Mickle, William Julius, M.D., F.R.C.P.Lond., 69, Linden Gardens, Bayswater, W. (PRESIDENT, 1896-7.)
1893. Middlemass, James, M.A., M.D., C.M., B.Sc.Edin., F.R.C.P., Medical Superintendent, Borough Asylum, Ryhope, Sunderland.
1910. Middlemiss, James Ernest, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Gartloch Asylum, Glasgow.
1883. Miles, George E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Hospital for the Insane, Rydalmere, New South Wales.
1887. Miller, Alfred, M.B. and B.C.Dubl., Medical Superintendent, Hatton Asylum, Warwick. (*Registrar since 1902.*)
1904. Miller, James Webster, M.B., Ch.B.Aberd., Wonford House, Exeter.
1893. Mills, John, M.B., B.Ch., and Diploma in Mental Diseases, R.U.I. District Asylum, Ballinasloe, Ireland.
1881. Mitchell, Richard Blackwell, M.D., C.M.Edin., Medical Supt., Midlothian District Asylum.
1910. Monnington, Richard Caldicott, M.D., Ch.B.Univ.Edin., D.P.H.Edin., Medical Superintendent, Laverstock House, Salisbury.
1878. Moody, Sir James M., M.R.C.S.Eng., L.R.C.P.&L.M.Edin., Medical Superintendent, County Asylum, Cane Hill, Coulsdon, Surrey.
1885. Moore, Edw. E., M.D.Dubl., M.P.C., Medical Superintendent, District Asylum, Letterkenny, Ireland.
1899. Moore, Wm. D., M.D., M.Ch.(R.U.I.), Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey.
1892. Morrison, Cuthbert S., L.R.C.P. and L.R.C.S.Edin., Medical Superintendent, County and City Asylum, Burghill, Hereford.
1910. Morton, Hugh, M.B., Ch.B.Glasg., Assistant Physician, Nethenbank, 13, Aytoun Road, Pollokshields, Glasgow.
1896. Morton, W. B., M.D.Lond., Assistant Medical Officer, Wonford House, Exeter.
1896. Mott, F. W., M.D., B.S., F.R.C.P.Lond., F.R.S., 25, Nottingham Place, W.
1896. Mould, Gilbert E., M.R.C.S., L.R.C.P.Lond., The Grange, Rotherham, Yorks.
1897. Mould, Philip G., M.R.C.S.Eng., L.R.C.P.Lond., Overdale, Whitefield, Manchester.
1908. Muirhead, Winifred, L.R.C.P., L.R.C.S.Edin., Assistant Medical Officer, Royal Asylum, Morningside, Edinburgh.
1907. Mules, Bertha Mary, M.B., B.S.Durh., Court Hall, Kenton, S. Devon.
1897. Mumby, Bonner Harris, M.D.Aber., D.P.H.Cantab., Medical Superintendent, Borough Asylum, Portsmouth.
1893. Murdoch, James William Aitken, M.B., C.M.Glasg., Medical Superintendent, Berks County Asylum, Wallingford.
1910. Murphy, Edward Patrick Harnett, B.A., L.A.H.Dubl., Assistant Medical Officer, Stewart Institution, Chapelizod, co. Dublin.
1878. Murray, Henry G., L.R.C.P.I., L.M., L.R.C.S.I., Assistant Medical Officer, Prestwich Asylum, Manchester.
1905. Murrell, Christine Mary, M.D., B.S.Lond., Royal Free Hospital, 86, Porchester Terrace, Hyde Park, W.
1909. Myers, Charles Samuel, M.A., M.D.Cantab. (*University Lecturer in Experimental Psychology*), Great Shelford, Cambridgeshire.
1903. Navarra, Norman, M.R.C.S., L.R.C.P., 51, Upper Bedford Place, W.C.

1880. Neil, James, M.D.Aberd., M.P.C., Medical Superintendent, Warneford Asylum, Oxford.
1910. Neill, Alexander W., M.B., Ch.B.Glasg., Assistant Physician, Morning-side Royal Asylum, Edinburgh.
1903. Nelis, William F., M.D.Durh., L.R.C.P.Edin., L.F.P.S.Glasg., Medical Superintendent, Newport Borough Asylum, Caerleon, Mon.
1875. Newington, Alexander, M.B.Camb., M.R.C.S.Eng., Woodlands, Ticehurst.
1873. Newington, H. Hayes, F.R.C.P.Edin., M.R.C.S.Eng., The Gables, Ticehurst, Sussex. (*Chairman Parliamentary Committee, 1896-1904.*) (PRESIDENT, 1889.) (*Treasurer since 1894.*)
1909. Nicoll, James, M.D., Ch.M.Edin., D.P.H.Lond. (*Senior Assistant Medical Officer, Caterham Asylum*), The Pines, Upper Caterham, Surrey.
1869. Nicolson, David, C.B., M.D., C.M.Aber., M.R.C.P.Edin., F.S.A.Scot., 201, Royal Courts of Justice, Strand, W.C. (PRESIDENT, 1895-6.)
1893. Nobbs, Athelstane, M.D., C.M.Edin., Layton House, Putney, S.W.
1888. Nolan, Michael J., L.R.C.P.I., M.P.C., Medical Superintendent, District Asylum, Downpatrick.
1909. Norman, Hubert James, M.B., Ch.B.Edin., D.P.H.Edin., Assistant Medical Officer, Camberwell House Asylum, S.E.
1885. Oakshott, James A., M.D., M.Ch. (R.U.I.), Medical Superintendent, District Asylum, Waterford, Ireland.
1903. O'Doherty, Patrick, B.A., M.B., B.Ch. (R.U.I.), District Asylum, Omagh.
1904. O'Downey, Augustine Francis, L.R.C.P. & S. Edin., Salop and Montgomery County Asylum, Bicton Heath, nr. Shrewsbury.
1901. Ogilvy, David, B.A., M.D., B.Ch., L.M.Dub., Senior Assistant Medical Officer, London County Asylum, Horton, nr. Epsom, Surrey.
1910. Oldershaw, George Francis, M.D., Ch.B.Liverp., D.P.H., Alderwood, Priory Road, Anfield, Liverpool.
1911. Oliver, Norman H., M.R.C.S., L.R.C.P.Lond., The Retreat, Richmond, Surrey.
1892. O'Mara, Francis, L.R.C.P. & S.I., District Asylum, Ennis, Ireland.
1886. O'Neill, Edward D., M.R.C.P.I., Medical Superintendent, The Asylum, Limerick.
1868. Orange, William, C.B., M.D.Heidelb., F.R.C.P.Lond., 11, Marina Court, Bexhill-on-Sea. (PRESIDENT, 1883.)
1907. O'Reilly, Arthur Edward, L.R.C.S. & P.I., L.M., Postmasburg District, Hay, Cape Colony.
1902. Orr, David, M.B., C.M.Edin., Pathologist, County Asylum, Prestwich, Lancs.
1910. Orr, James H. C., M.B., Ch.B.Edin., Assistant Physician, Midlothian and Peebles Asylum, Rosslyn Castle, N.B.
1899. Osburne, Cecil A. P., F.R.C.S.Edin., L.R.C.P.Edin., The Grove, Old Catton, Norwich.
1890. Oswald, Landel R., M.B., C.M.Glasg., M.P.C., Physician Superintendent, Royal Asylum, Gartnavel, Glasgow.
1899. Owen, Corbet W., M.B., C.M.Edin., 31, Victoria Place, High Street, Bangor, North Wales.
1905. Paine, Frederick, M.R.C.S., L.R.C.P.Lond., Claybury Asylum, Woodford Bridge, Essex.
1907. Parker, James, L.R.C.S. & P. and L.M.Irel., Assistant Medical Officer, West Riding Asylum, Wakefield.
1898. Parker, William Arnot, M.B., C.M.Glasg., Medical Superintendent, Gartloch Asylum, Gartcosh, N.B.
1898. Pasmore, Edwin Stephen, M.D.Lond., M.R.C.P.Lond., Medical Superintendent, Croydon Mental Hospital, Warlingham, Surrey.
1899. Paton, Robert N., L.R.C.P., L.R.C.S.Edin., Medical Officer, H.M. Prison, Wormwood Scrubbs, London, W.
1899. Patrick, John, M.B., Ch.B. (R.U.I.), District Asylum, Belfast.

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1892. Patterson, Arthur Edward, M.D., C.M.Aber., Senior Assistant Medical Officer, City of London Asylum, Dartford.
1905. Paul, Maurice Eden, M.D.Brux., M.R.C.S., L.R.C.P., Moorcroft, Parkstone, Dorset.
1907. Peachell, George Ernest, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, West Sussex County Asylum, Chichester.
1903. Pearce, Francis H., M.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P., Madeley Court, Shropshire.
1910. Pearn, Oscar Phillips Napier, M.R.C.S., L.R.C.P.Lond., L.S.A., Assistant Medical Officer, London County Asylum, Horton, Epsom.
1910. Pearson, Robert Walter Joseph, L.R.C.P.&S.E., L.F.P.S.Glasg., Assistant Medical Officer, London County Asylum, Claybury, Woodford Bridge.
1893. Perceval, Frank, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, County Asylum, Prestwich, Manchester, Lancashire.
1911. Perdrau, Jean René, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., County Asylum, Exminster, Devon.
1878. Philipps, Sutherland Rees, M.D., C.M. Queen's Univ. Irel., F.R.G.S. (Address uncommunicated.)
1875. Philipson, Sir George Hare, M.D. and M.A.Cantab., F.R.C.P.Lond., 7, Eldon Square, Newcastle-on-Tyne.
1908. Phillips, John George Porter, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Assistant Physician, Bethlem Royal Hospital, Lambeth, S.E.
1910. Phillips, John Robert Parry, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Bristol City Asylum, Fishponds.
1906. Phillips, Nathaniel Richard, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Abergavenny, Monmouthshire.
1905. Phillips, Norman Routh, M.D.Brux., M.R.C.S., L.R.C.P., St. Andrew's Hospital, Northampton.
1891. Pierce, Bedford, M.D.Lond., F.R.C.P., Medical Superintendent, The Retreat, York. (*Hon. Secretary N. and M. Division 1900-8.*)
1888. Pietersen, J. F. G., M.R.C.S., L.R.C.P.Lond., Ashwood House, Kingswinford, near Dudley, Stafford.
1896. Planck, Charles, M.A.Camb., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Brighton County and Borough Asylum, Haywards Heath.
1889. Pope, George Stevens, L.R.C.P.&L.R.C.S.Edin., L.F.P.&S.Glasg., Medical Superintendent, Somerset and Bath Asylum, "Westfield," near Wells, Somerset.
1909. Potter, Scott, L.R.C.S.&P.Irel., Brighton Terrace, Dindoran, Co. Donegal.
1876. Powell, Evan, M.R.C.S.Eng., L.S.A., Medical Superintendent, Borough Lunatic Asylum, Nottingham.
1910. Powell, James Farquharson, M.R.C.S., L.R.C.P., D.P.H.Lond., 74, Huron Road, Balham.
1908. Prentice, Reginald Wickham, L.M.S.S.A.Lond., Beauworth Manor, Arlesford, Hants.
1904. Pringle, Archibald Douglas, M.B., Ch.B.Aberd., Government Asylum, Pietermaritzburg, Natal, South Africa.
1875. Pringle, Henry T., M.D.Glasg., Hawtree, Ferndown, Wimborne.
1901. Pugh, Robert, M.D., Ch.B.Edin., Medical Superintendent, Brecon and Radnor Asylum, Talgarth, S. Wales.
1904. Quin, Henry C. E., L.R.C.P., L.R.C.S.Edin., Brooke House, Upper Clapton, N.E.
1904. Race, John Percy, M.R.C.S., L.R.C.P., L.S.A., The Retreat, Witham, Essex.
1908. Rains, George Hooper, L.S.A.Lond., 10, Grove Park, Redlands, Bristol.
1899. Rainsford, F. E., M.D., B.A.Dubl., Resident Physician, Stewart Institute, Palmerston, co. Dublin.
1894. Rambaut, Daniel F., M.A., M.D.Univ. Dubl., Salop and Montgomery Asylum, Bicton Heath, Shrewsbury.
1910. Rankine, Roger Aiken, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Assistant Physician, Crichton Royal Institution, Dumfries.

1889. Raw, Nathan, M.D., B.S.Durh., L.S.Sc., F.R.C.S.Edin., M.R.C.P.Lond., 66, Rodney Street, Liverpool.
1893. Rawes, William, M.D.Durh., F.R.C.S.Eng., Medical Superintendent, St. Luke's Hospital, Old Street, London, E.C.
1870. Rayner, Henry, M.D.Aberd., M.R.C.P.Edin., 16, Queen Anne Street, London, W. (PRESIDENT, 1884.) (*General Secretary*, 1878-89.) (*Co-Editor of Journal* since 1895.)
1903. Read, George F., L.R.C.S., L.R.C.P.Edin., Hospital for the Insane, New Norfolk, Tasmania.
1899. Redington, John, F.R.C.S.&L.R.C.P.I., Assistant Medical Officer and Pathologist, Richmond Asylum, Dublin.
1911. Reid, Daniel McKinley, M.B., Ch.B.Glasg., Assistant Medical Officer, London County Asylum, Horton, Epsom.
1910. Reid, William, M.A.St. And., M.B., Ch.B., Senior Assistant Medical Officer, Burntwood Asylum, Lichfield.
1887. Reid, William, M.D.Aberd., Physician Superintendent, Royal Asylum, Aberdeen.
1886. Revington, George, M.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, Central Criminal Asylum, Dundrum, Ireland.
1907. Reynolds, Ernest Septimus, B.Sc.Vict., M.D., F.R.C.P.Lond., 2, St. Peter's Square, Manchester.
1899. Rice, David, M.D.Bruce, M.R.C.S., L.R.C.P., Medical Superintendent, City Asylum, Hillesdon, Norwich.
1897. Richard, William J., M.A., M.B., C.M.Glasg., Medical Officer, Govan Parochial Asylum, Merryflats, Govan.
1899. Richards, John, M.B., C.M.Edin., F.R.C.S.E., Medical Superintendent, Joint Counties Asylum, Carmarthen.
1905. Ridley, Edward Hope, M.D.Edin., The Asylum, Portsmouth.
1904. Rigden, Alan, M.D.Durh., Salop and Montgomery Asylum, nr. Shrewsbury.
1907. Rivers, William Gregory, M.B., Ch.B.Edin., Assistant Medical Officer, Cornwall County Asylum, Bodmin.
1903. Roberts, Norcliffe, M.D., B.S.Durh., London County Asylum, Cane Hill, Coulsdon, Surrey.
1905. Robertson, Constance C., M.D., B.S.Durh., Semmercote, Darlington.
1887. Robertson, Geo. M., M.B., F.R.C.P.Edin., Physician-Superintendent, Royal Asylum, Morningside, Edinburgh.
1908. Robertson, George Dunlop, L.R.C.S.&P.Edin., Assistant Medical Officer, District Asylum, Hartwood, Lanark.
1910. Robertson, Jane I., M.B., Ch.B.Glasg., The Dog Leap, Limavady, co. Derry.
1895. Robertson, William Ford, M.D., C.M.Edin., 48, Northumberland Street, Edinburgh.
1905. Robertson-Milne, Major Charles John, M.B., C.M.Aberd., Superintendent, Bengal Central Asylum, Berhampore, Bengal.
1900. Robinson, Harry A., M.D., Ch.B.Vict., 56, West Derby Street, Liverpool.
1908. Rodgers, Frederick Millar, M.B., Ch.B.Vict., D.P.H., Senior Medical Officer, County Asylum, Winwick, Lanes.
1908. Rolleston, Charles Frank, B.A., M.B., Ch.B., B.A.O.Dub., Assistant Medical Officer, County of London, Manor Asylum, Epsom.
1895. Rolleston, Lancelot W., M.B., B.S.Durh., Medical Superintendent, Middlesex County Asylum, Napsbury, near St. Albans.
1879. Ronaldson, J. B., M.D.St.And., F.R.C.S. & L.R.C.P.Edin., D.P.H., Ennerdale, Haddington, N.B.
1879. Roots, William H., M.R.C.S.Eng., Canbury House, Kingston-on-Thames.
1899. Rorie, George Arthur, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Dorset County Asylum, Dorchester.
1860. Rorie, James, M.D.Edin., L.R.C.S.Edin., 4, Roxburgh Terrace, West Park Road, Dundee. (*Hon. Secretary for Scottish Division* 1861-69.)

1888. Ross, Chisholm, M.D.Syd., M.B., Ch.M.Edin., 147, Macquarie Street, Sydney, New South Wales.
1910. Ross, Donald, M.B., Ch.B.Edin., Assistant Medical Officer, Roxburgh District Asylum, Melrose.
1905. Ross, Sheila Margaret, M.D., Ch.B.Edin., Assistant Medical Officer of Health, 42, Cavill Drive, Fallowfield, Manchester.
1899. Rotherham, Arthur, M.A., M.B., B.C.Cantab., Medical Superintendent, Darenth Asylum, Dartford, Kent.
1906. Rowan, Marriott Logan, B.A., M.D., R.U.I., Assistant Medical Officer, Derby County Asylum, Mickleover.
1884. Rowe, Edmund L., L.R.C.P.&S.Edin., Medical Superintendent, Borough Asylum, Ipswich.
1883. Rowland, E. D., M.B., C.M.Edin., The Public Hospital, George Town, Demerara, British Guiana.
1902. Rows, Richard Gundry, M.D.Lond., M.R.C.S., L.R.C.P., Pathologist, County Asylum, Lancaster.
1877. Russell, Arthur P., M.B., M.R.C.P.Edin., The Lawn, Lincoln.
1907. Rutherford, Henry Richard Charles, L.R.C.P.&S.Irel., L.M., St. Patrick's Hospital, James's St., Dublin.
1896. Rutherford, James Mair, M.B., C.M., F.R.C.P.Edin., Brislington House, Bristol.
1907. Rutherford, James Whigham, L.R.C.P.&S.I., L.M., Assistant Medical Officer, Catford Asylum, Taunton.
1896. Rutherford, Robert Leonard, M.D. (R.U.I.), Medical Superintendent, Digby's Asylum, Exeter.
1908. Rutledge, W. E., M.R.C.S., L.R.C.P.Lond., County Asylum, Powick, Worcester.
1902. Sall, Ernest Frederick, M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Borough Asylum, Canterbury.
1908. Sammon, William Douglas, L.R.C.S.&P., L.M.Irel., 15, Prince Patrick Terrace, North Circular Road, Dublin.
1908. Samuels, William Frederick, L.M.&L.S.Dubl., Medical Superintendent, Central Asylum, Sanjory, Rambutan, Federated Malay States.
1894. Sankey, Edward H. O., M.A., M.B., B.C.Cantab., Resident Medical Licensee, Boreatton Park Licensed House, Baschurch, Salop.
- * Sankey, R. H. Heurtley, M.R.C.S.Eng., 3, Marston Ferry Road, Oxford.
1873. Savage, Geo. H., M.D.&F.R.C.P.Lond., 26, Devonshire Place, W. (*Late Editor of Journal.*) (PRESIDENT, 1886.)
1906. Scanlan, John J., L.R.C.P.&S.Edin., L.F.P.S.Glasg., D.P.H., 110, Cannon Street, E.C.
1896. Scott, James, M.B., C.M.Edin., Governor's House, H.M. Prison, Holloway, N.
1889. Scowcroft, Walter, M.R.C.S., Medical Superintendent, Royal Lunatic Hospital, Cheadle, near Manchester.
1911. Scroope, Geoffrey, M.B., B.Ch.Dub., Assistant Medical Officer, Central Asylum, Dundrum.
1880. Seccombe, George S., M.R.C.S., L.R.C.P., c/o Messrs. H. S. King and Co., 65, Cornhill, E.C.
1879. Seed, William Hy., M.B., C.M.Edin., The Poplars, 110, Waterloo Road, Ashton-on-Ribble, Preston.
1906. Sephton, Robert Poole, B.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., County Lunatic Asylum, Lancaster.
1882. Seward, William J., M.B.Lond., M.R.C.S., Medical Superintendent, Colney Hatch Asylum, London, N.
1901. Shaw, B. Henry, M.B., B.Ch., B.A.O.(R.U.I.), Assistant Medical Officer, County Asylum, Stafford.
1909. Shaw, Capt. William Samuel J., M.B., B.Ch.(R.U.I.), I.M.S., c/o Messrs. Grindlay & Co., 54, Parliament Street, S.W.
1905. Shaw, Charles John, M.D., Ch.B., F.R.C.P.E., Medical Superintendent, Argyle and Bute Asylum, Lochgilphead.

1891. Shaw, Harold B., B.A., M.B., D.P.H.Camb., Medical Superintendent, Isle of Wight County Asylum, Whitecroft, Newport, Isle of Wight.
1904. Shaw, Patrick, L.R.C.P.&S.Edin., Medical Officer, Hospital for the Insane, Kew, Victoria, Australia.
- Shaw, T. Claye, B.A., M.D.Lond., F.R.C.P.Lond., 30, Harley Street, W.
1882. Sheldon, Thomas S., M.B.Lond., M.R.C.S., Medical Superintendent, Cheshire County Asylum, Parkside, Macclesfield.
1909. Shepherd, George Ferguson, L.R.C.S.&P.Irel., Assistant Medical Officer, St. Edmundsbury, Lucan.
1900. Shera, John E. P., M.D.Brux., L.R.C.P.&S.Irel., Somerset County Asylum, Wells, Somerset.
1877. Shuttleworth, George E., M.D.Heidelb., M.R.C.S. and L.S.A.Eng., B.A. Lond., Parkholme, East Sheen, S.W. (*Late Medical Superintendent, Royal Albert Asylum, Lancaster.*)
1899. Sibley, Reginald Oliver, M.B.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, London County Asylum, Cane Hill, Coulsdon, Surrey.
1901. Simpson, Alexander, M.A., M.D.Aber., Medical Superintendent, County Asylum, Winwick, Newton-le-Willows, Lancashire.
1905. Simpson, Edward Swan, M.B., Ch.B.Edin., East Riding Asylum, Beverley, Yorks.
1888. Sinclair, Eric, M.D.Glasg., Richmond Terrace, Demain, Sydney, N.S.W.
1891. Skeen, James Humphry, M.B., C.M.Aber., Medical Superintendent, Kirklands Asylum, Bothwell.
1898. Skeen, William St. John, M.B., C.M.Aberd., County Asylum, Winterton, Ferryhill, Durham.
1900. Skinner, Ernest W., M.D., C.M.Edin., Mansfield, Rye, Sussex.
1901. Slater, George N. O., M.D.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, Essex County Asylum, Brentwood.
1897. Smalley, Herbert, M.D.Durh., L.R.C.P., M.R.C.S., Prison Commission, Home Office, Whitehall, S.W.
1907. Smith, Ch. Mollyson, M.B., Ch.B.Aberd., Assistant Medical Officer, County Asylum, Prestwich, Manchester.
1910. Smith, Gayton Warwick, M.D.Lond., B.S.Dunelm, D.P.H.Cantab., M.R.C.S., L.R.C.P., Assistant Medical Officer, Middlesex County Asylum, Tooting, S.W.
1905. Smith, George William, M.B., Ch.M.Edin., Holloway Sanatorium, Virginia Water, Surrey.
1907. Smith, Henry Watson, M.B., Ch.B.Aberd., Medical Superintendent, Lebanon Hospital for the Insane, Asfuriejeh, near Beyrout, Syria.
1899. Smith, John G., M.D., Ch.M.Edin., Herts County Asylum, Hill End, St. Albans, Herts.
1885. Smith, R. Percy, M.D., B.S.Lond., F.R.C.P., M.P.C., 36, Queen Anne's Street, Cavendish Square, W. (*General Secretary, 1896-7. Chairman Educational Committee, 1899-1903. (PRESIDENT, 1904-5.)*)
1911. Smith, Thomas Waddelow, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Devon County Asylum, Exminster.
1884. Smith, W. Beattie, F.R.C.S.Edin., L.R.C.P.Edin., 4, Collins Street, Melbourne, Victoria.
1903. Smith, William Maule A., M.D., Ch.B.Edin., M.R.C.P.Edin., Senior Assistant Medical Officer, Worcester County Asylum, Barnsley Hall, Bromsgrove.
1901. Smyth, Robt. B., M.A., M.B., Ch.B.Dubl., Senior Assistant Medical Officer, County Asylum, Gloucester.
1899. Smyth, Walter S., M.B., B.Ch., R.U.I., Assistant Medical Officer, County Asylum, Antrim.
1885. Soutar, James Grieg, M.B., Ch.M.Edin., Medical Superintendent, Barnwood House, Gloucester.
1906. Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, London County Asylum, Banstead, Surrey.
1883. Spence, John Buchan, M.B., Ch.M.Edin., L.R.C.P.&S., The Asylum, Colombo, Ceylon.
1875. Spence, J. Beveridge, M.D., M.C.Queen's Univ., Medical Superintendent, Burntwood Asylum, near Lichfield. (*First Registrar, 1892-1899; Chairman Parliamentary Committee since 1910. (PRESIDENT, 1899-1900.)*)

1891. Stansfield, T. E. K., M.B., C.M.Edin., Medical Superintendent, London County Asylum, Bexley, Baldwyn's Park, Bexley, Kent.
1901. Starkey, William, M.B., B.Ch., B.A.O.Roy. Univ. Irel., Assistant Medical Officer, Lancashire County Asylum, Prestwich, near Manchester.
1907. Steele, Patrick, M.D., Ch.B.Edin., Assistant Medical Officer, Bangour Village, Dechmont, Linlithgowshire.
1898. Steen, Robert H., M.D.Lond., Medical Superintendent, City of London Asylum, Stone, Dartford. (*Hon. Sec. S.E. Division, 1905-10.*)
1909. Steward, Sidney John, M.D., B.C.Cantab., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, 8, The Court, Bury Fields, Guildford.
1868. Stewart, James, F.R.C.P.Edin., L.R.C.S.Irel., "Burncranagh," 16, Clyde Road, Wallington, Surrey.
1887. Stewart, Rothsay C., M.R.C.S.Eng., L.S.A., Leicestershire and Rutland Asylum, Narborough, near Leicester.
1905. Stilwell, Henry Francis, L.R.C.P.&S.E., Barnwood House, Gloucester.
1899. Stilwell, Reginald J., M.R.C.S., L.R.C.P., Moorcroft House, Hillingdon, Middlesex.
1897. Stoddart, William Henry Butter, M.D., B.S., F.R.C.P.Lond., M.R.C.S.Eng., Resident Physician and Superintendent, Bethlem Royal Hospital, London, S.E. (*Hon. Sec. Educational Committee since 1908.*)
1909. Stokes, Frederick Ernest, M.B., Ch.B.Glasg., D.P.H.Cantab., Assistant Medical Officer, Borough Asylum, Portsmouth.
1905. Strathearn, John, M.D., Ch.B.Glasg., British Ophthalmic Hospital, Jerusalem.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., The Royal Societies Club, St. James's Street, S.W.
1885. Street, C. T., M.R.C.S., L.R.C.P., Haydock Lodge, Ashton, Newton-le-Willows, Lancashire.
1908. Stuart, Francis Arthur Knox, B.A.Cantab., L.S.A.Lond., Assistant Medical Officer, West Sussex Asylum, Chichester.
1909. Stuart, Frederick J., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Northampton County Asylum, Berrywood.
1900. Sturrock, James Prain, M.A.St.And., M.D., C.M.Edin., H.M. Prison, Perth, N.B.
1886. Suffern, Alex. C., M.D., M.Ch. (R.U.I.), Medical Superintendent, Ruberry Hill Asylum, near Bromsgrove, Worcestershire.
1894. Sullivan, William C., M.D. (R.U.I.), 440, Camden Road, N.
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1910. Sutherland, Joseph Roderick, M.B., Ch.B.Glasg., M.R.C.S., L.R.C.P.Lond., 31, Hamilton Terrace, Partick, Glasgow.
1877. Swanson, George I., M.D.Edin., The Pleasaunce, Heworth Moor, York.
1908. Swift, Eric W. D., M.B.Lond., Medical Superintendent, Orange River Colony Govt. Asylum, Bloemfontein.
1901. Sykes, Arthur, M.R.C.S., L.R.C.P., Oak Villas, Barkerhouse Road, Nelson, Lancs.
1857. Tate, William B., M.D.Aber., M.R.C.P.Lond., M.R.C.S.Eng., Medical Superintendent, Lunatic Hospital, The Coppice, Nottingham.
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1897. Taylor, Frederic Ryott Percival, M.D., B.S.Lond., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, East Sussex Asylum, Hellingly.
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1904. Thompson, Alexander D., M.B., Ch.B.Glasg., Fulbourn Asylum, Cambridge.

1880. Thomson, David G., M.D., C.M.Edin., Medical Superintendent, County Asylum, Thorpe, Norfolk.
1903. Thomson, Herbert Campbell, M.D., F.R.C.P.Lond., Assist. Physician Middlesex Hospital, 34, Queen Anne Street, W.
1905. Thomson, James Hutcheon, M.B., Ch.B.Aberd., Powick Asylum, Worcester.
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1901. Tighe, John V. G. B., M.B., B.Ch., B.A.O.Irel., North Riding Asylum, Clifton, Yorks.
1900. Tinker, William, M.R.C.S., L.R.C.P. (Travelling.)
1903. Topham, J. Arthur, B.A.Cantab., M.R.C.S.&P.Lond., County Asylum, Chartham, Kent.
1896. Townsend, Arthur A. D., M.D., B.Ch.Birm., M.R.C.S., L.R.C.P., Assistant Medical Officer, Hospital for Insane, Barnwood House, Gloucester.
1904. Treadwell, Oliver Ferreira Naylor, M.R.C.S.Eng., L.S.A., H. M. Prison, Parkhurst, I. of W.
1903. Tredgold, Alfred F., M.R.C.S., L.R.C.P., 6, Dapdune Crescent, Guildford, Surrey.
1902. Trevelyan, Edmund Fauriel, B.Sc., M.D.Lond., F.R.C.P.Lond., M.R.C.S., Assistant Physician to the Leeds General Infirmary, 40, Park Square, Leeds.
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1888. Tuke, John Batty, jun., M.D., F.R.C.P.Edin., Resident Physician, Saughton Hall, Edinburgh; Linden Lodge, Loanhead, Midlothian.
1885. Tuke, T. Seymour, M.A., M.B., B.Ch.Oxon., M.R.C.S.E., Chiswick House, Chiswick, W.
1877. Turnbull, Adam Robert, M.B., C.M.Edin., Medical Superintendent, Fife and Kinross District Asylum, Cupar. (*Hon. Secretary for Scottish Division, 1894-1901.*) (*PRESIDENT-ELECT, 1909-10.*)
1906. Turnbull, Peter Mortimer, M.B., B.Ch.Aberd., Tooting Bec Asylum, Tooting, S.W.
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1889. Turner, Alfred, M.D., C.M.Edin., Plympton House, Plympton, S. Devon.
1906. Turner, Frank Douglas, M.B.Lond., M.R.C.S., L.R.C.P., Medical Officer, Royal Eastern Counties Institution, Colchester.
1890. Turner, John, M.B., C.M.Aberd., Medical Superintendent, Essex County Asylum, Brentwood.
1878. Urquhart, Alex. Reid, M.D., F.R.C.P.E., Physician Superintendent, James Murray's Royal Asylum, Perth. (*Co-Editor of Journal since 1894.*) (*Hon. Sec. for Scottish Division, 1886-94.*) (*PRESIDENT, 1898-9.*)
1904. Vincent, George A., M.B., B.Ch.Edin., Assistant Medical Superintendent, St. Ann's Asylum, Trinidad, B.W.I.; c/o William Bryce, 54 and 54A, Lothian Street, Edinburgh.
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1908. Wallace, John Andrew Leslie, M.D., Ch.B.Edin., M.P.C., State Hospital for the Insane, Iladesville, Sydney, N.S.W.
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1884. Walker, Edw. B. C., M.D., C.M.Edin., Hensleigh Cottage, Tiverton, Devon.
1896. Walker, William F., L.R.C.S.&L.M.Edin., L.S.A.Lond., Plas-yn-Dinas, Dinas Mawddwy, Merionethshire.
1910. Waters, John Patrick, M.B., Ch.B., B.A.O. (R.U.I.), Assistant Medical Officer, District Asylum, Suffolk.
1889. Warnock, John, M.D., C.M., B.Sc.Edin., Abassia, nr. Cairo, Egypt.
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1902. Watson, Frederick, M.B., C.M.Edin., The Grange, East Finchley, London, N.

- 1891 Watson, George A., M.B., C.M.Edin., M.P.C., Lyons House, Rainhill, Liverpool.
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- 1885 Watson, William Riddell, L.R.C.S. and L.R.C.P.Edin., Govan District Asylum, Hawkhead, Paisley.
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1911. White, Edward Barton, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Cardiff City Mental Hospital, Whitchurch.
1884. White, Ernest William, M.B.Lond., M.R.C.P.Lond., Betley House, nr. Shrewsbury. (*Hon. Sec. South-Eastern Division, 1897-1900.*) (*Chairman Parliamentary Committee, 1904-7.*) (PRESIDENT 1903-4.)
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1883. Wiglesworth, Joseph, M.D., F.R.C.P.Lond., Rainhill Asylum, Lancashire. (PRESIDENT, 1902-3.)
1895. Wilcox, Arthur William, M.D., C.M.Edin., Assistant Medical Officer, County Asylum, Hatton, Warwick.
1900. Wilkinson, H. B., M.R.C.S., L.R.C.P., Assistant Medical Officer, Plymouth Borough Asylum, Blackadon, Ivybridge, South Devon.
1887. Will, John Kennedy, M.A., M.D., C.M.Aberd., Bethnal House, Cambridge Road, N.E.
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1909. Williamson, George Scott, L.R.C.S.&P.Edin., Pathologist, West Riding Asylum, Wakefield.
1904. Wilson, Geoffrey Plumpton, M.R.C.S., L.R.C.P.Lond., Kesteven Asylum, Sleaford, Lincs.
1897. Winder, W. H., M.R.C.S., L.R.C.P.Lond., D.P.H.Cantab., Deputy Medical Officer, H.M. Convict Prison, Aylesbury.
1875. Winslow, Henry Forbes, M.D.Lond., M.R.C.P.Lond., 29, Belsize Square, S. Hampstead, N.W.; and Little Combe, Charlton.
1899. Wolseley-Lewis, Herbert, M.D.Brux., F.R.C.S.Eng., Medical Superintendent, Kent County Asylum, Barming Heath, Maidstone. (*Secretary Parliamentary Committee since 1907.*)
1904. Wood, Martin Stanley, M.B., Ch.B.Vict., Royal Asylum, Cheadle, Cheshire.
1869. Wood, T. Outterson, M.D.Durh., M.R.C.P.Lond., F.R.C.P., F.R.C.S. Edin., 40, Margaret Street, Cavendish Square, W. (PRESIDENT, 1905-6.)
1885. Woods, J. F., M.D.Durh., M.R.C.S., 7, Harley Street, Cavendish Square, W.
1900. Worth, Reginald, M.B., B.S.Durh., M.R.C.S., L.R.C.P., Middlesex Asylum, Tooting, S.W.
1862. Yellowlees, David, LL.D.Glas., M.D.Edin., F.F.P.S.Glasg., 6, Albert Gate, Dowan Hill, Glasgow. (PRESIDENT, 1890.)
1910. Younger, Edward George, M.D.Brux., M.R.C.P.Lond., M.R.C.S., L.S.A., Physician to the Finsbury Dispensary, 2, Mecklenburgh Square, W.C.

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Medical Superintendent, Peckham House Asylum, Peckham.

List of those who have passed the Examination for the Certificate of Efficiency in Psychological Medicine, entitling them to append M.P.C. (Med.-Psych. Certif.) to their names.

- | | |
|---------------------------------|---------------------------|
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| Ainslie, William. | Cope, George Patrick. |
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| Ballantyne, Harold S. | Cram, John. |
| Barbour, William. | Crills, G. H. |
| Barker, Alfred James Glanville. | Cross, Edward John. |
| Bashford, Ernest Francis. | Cruikshank, George. |
| Begg, William. | Cullen, George M. |
| Belben, F. | Cunningham, James F. |
| Bird, James Brown. | Dalgetty, Arthur B. |
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| Black, E. J. | Davidson, William. |
| Black, Robert S. | 6 Dawson, W. R. |
| Black, Victor. | De Silva, W. H. |
| Blackwood, John. | 11 Devine, H. |
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| Bond, R. St. G. S. | Donald, Wm. D. D. |
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| Campbell, Alex Keith. | English, Edgar. |
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| Campbell, Peter. | Eustace, Henry Marcus. |
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Part I.—Original Articles.

*Biochemical Examination of the Cerebro-spinal Fluid
in Cases of Mental Disease; Essay for which was
awarded the Bronze Medal of the Medico-Psychological
Association, 1910.* By HUGH MORTON, M.B.,
Ch.B., Assistant Physician, Glasgow Royal Asylum,
Gartnavel.

WITHIN recent years it has become a recognised practice to perform lumbar puncture on cases suffering from cerebro-spinal disease; the practical value of the procedure is generally admitted as an aid to diagnosis; and in some diseases, such as tetanus and cerebro-spinal meningitis, the operation is resorted to for therapeutic purposes. It must, however, be admitted that it is only in such diseases of the cerebro-spinal system as are due to the presence of well-recognised organisms that the diagnostic value of lumbar puncture approaches scientific accuracy, in such diseases, for example, as tubercular meningitis, cerebro-spinal fever, pneumococcal meningitis, and sleeping-sickness. The value to be attached to an examination of the fluid for the syphilitic reaction is minimised when one considers that for this test the blood-serum is preferable.

The method employed for obtaining the fluid is as follows: The patient is placed on the left side, and the knees are drawn up towards the abdomen, and the body bent slightly forward. A point on a level with the crests of the ilia is chosen, and a

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long aspirating needle is inserted about 1 cm. below and to the side of the spinous process; the needle is directed slightly upwards and inwards, the depth to which it is inserted varying with the age of the patient. It is advisable to puncture rapidly so as to avoid the deviating influence of the contracting muscles. Rapid puncture also assures the entrance of the needle into the canal before the venous plexus becomes turgescient from the pain and excitement incident to the operative procedure; the presence of blood in a sample of spinal fluid is not infrequently due to the fact that the patient is restless, and the turgid veins are thus easily pierced by the needle. In excitable cases, and especially in cerebro-spinal fever, it is advisable to give a little chloroform during the operation—just sufficient to dull the senses. In the majority of ordinary cases, however, this is not necessary; local anæsthesia does not appear to be of any use.

As regards its chemical composition, the cerebro-spinal fluid contains 99 *per cent.* water and 1 *per cent.* solids. Albumen, globulin, fats, cholesterin, sodium lactate, chlorides, phosphates, sulphates are said to be present in very small amounts. The presence of urea has been determined in some cases, as also a substance which reduces Fehling's solution, and gives rise to a brown colour when boiled with caustic potash; this substance does not, however, undergo fermentation, nor does it form osazone in the presence of phenylhydrazin, it is generally looked upon as being pyrocatechin. Glucose is said by some authorities to be present in the fluid at times. Lichtheim reports the presence of glucose in cases of brain tumour determined by the phenylhydrazin test. With regard to albuminous bodies, serum albumen is said to be present only under exceptional conditions, while normally it is possible to demonstrate the presence of globulin and albumoses.

It has been found that the amount of albumen present may vary considerably in pathological conditions. In inflammatory conditions such as cerebro-spinal fever and pneumococcal meningitis it may be very much increased, while in hydrocephalus without meningitis it may be relatively diminished. Mott and Halliburton (1) found a considerable increase in cases of general paralysis, and they also found that in general paralysis nucleo-albumen may be present; this substance is not present in normal conditions, and these authors attribute

its presence to the breaking down of the components of Nissl bodies.

Another substance whose presence in cerebro-spinal fluid has been determined is cholin. It is said by Gumprecht to be present in traces even in normal conditions. Donath (2) demonstrated its presence in considerable amounts in 15 out of 18 cases of epilepsy, in 3 out of 3 cases of Jacksonian epilepsy, in 2 out of 3 cases of dementia paralytica, and in 10 out of 15 cases of tabes dorsalis; the amounts which he demonstrated varied between 0.021 and 0.046 *per cent.* Cariat (3) found cholin invariably in general paralysis although also in smaller amounts in other cases, such as alcoholic neuritis, senile dementia and organic dementia. Lecithin was also found by Donath twice in the cerebro-spinal fluid, in a case of tabes and in a case of general paralysis.

The present investigation is concerned with the application of the principles and methods of hæmolysis to an examination of the properties of the cerebro-spinal fluid in various types of mental disease. The investigation includes:

(1) An examination of cerebro-spinal fluids for the syphilitic reaction (Wassermann reaction).

(2) An examination for the presence of substances which exercise an activating or inhibitory effect on the hæmolytic properties of cobra venom.

(3) The relative amount of globulin and substances precipitated by alcohol in cerebro-spinal fluids from various sources; and the relation of the quantities of these substances to the presence of the Wassermann reaction, and to the presence of substances influencing the hæmolytic action of cobra venom.

(4) Precautions necessary in the separation of the constituents of the cerebro-spinal fluid by filtration.

(1) *The Wassermann Reaction.*

The methods of hæmolysis which now play such an important part in forensic and clinical medicine, as well as in physiological chemistry, are founded on the important discovery made by Bordet (4) in 1900, that an immune serum contains a *thermostable substance* (immune body) which in the presence of the *original immunising agent* (blood-corpuscles or bacteria) is capable of absorbing hæmolytic complement; that is to say,

a hæmolytic or bacteriolytic serum heated at 57° C. for an hour will lose its power of lysing the homologous corpuscles or bacteria, but it will retain thermostable substances whose activity can be restored by the addition of fresh non-immune serum (complement). The absorption or deviation of complement by an immune body (anti-body) in the presence of the original immunising agent (antigen) is seen when subsequently sensitised red blood-corpuscles are added, that is, red blood-corpuscles which have already been brought into contact with their specific inactivated immune serum, and only require the addition of complement to complete the hæmolytic process. To take a concrete example: the fresh serum of an animal immunised against the cholera vibrio, if brought into contact with the organisms produces lysis; the same serum heated for an hour at 57° C. fails to do so; if, however, fresh normal serum be added to the heated serum, then lysis of the organisms does occur; this absorption can be proved by the subsequent addition of sensitised red blood-corpuscles, which require only the complement of a fresh serum to become lysed; thus, if after the addition of the sensitised red blood-corpuscles no hæmolysis occurs, then a corresponding antigen (cholera vibrio) and anti-body must have absorbed the complement; if, on the other hand, hæmolysis has occurred, there cannot have been an association of antigen with its specific immune body. The Wassermann reaction for syphilis consists essentially in this—that hæmolytic complement is absorbed by a mixture of syphilitic serum and organ extract. Wassermann, Neisser and Bruck (5), when they first made the observation, believed that the reaction depended on the presence of spirochætæ in the organs from which the extracts were made acting along with homologous anti-bodies in the syphilitic serum; in other words, that the reaction corresponded exactly with that in the case of the cholera vibrio and its immune serum. It was, however, subsequently demonstrated by Marie and Levaditi that an extract of guinea-pig's liver could serve as "antigen," and it is now recognised that the most serviceable "antigen" is an alcoholic extract of an organ rich in lipid substances, and the organ mostly employed is the liver. The extract employed in the present investigation was obtained by reducing ox liver to a pulp and making a mixture of one part of organ pulp to four parts of 96 *per cent.* alcohol; this was

allowed to stand for four days at room temperature and then filtered. For each experiment an emulsion was made up of one part of alcoholic extract to five parts of normal saline solution, and of this emulsion 0.6 c.c. was used for each tube in which emulsion was required. Most important for the purpose of determining comparative results is the estimation of the actual amount of complement absorbed by the various cerebro-spinal fluids; and the complement was in each case measured in terms of "hæmolytic doses." Table I shows the method adopted in estimating the differences in the fluids examined.

Three series of tubes are employed: Series A, containing in each tube 0.6 c.c. of emulsion of organ-extract; Series B, containing 0.1 c.c. of the cerebro-spinal fluid to be tested in 0.6 c.c. salt-solution; and Series C, containing the mixture of the test amount of organ-extract (0.6 c.c.) and cerebro-spinal fluid (0.1 c.c.). The complement-containing serum is then added; to Series A and B, 1, 2, 3, 4, etc., minimum hæmolytic doses, and to Series C, 7, 10, 15, 20, 30, 40 doses. In every instance a preliminary estimation of the hæmolytic dose of the complement is made, and this is further controlled by incubating amounts of complement in 0.6 c.c. salt-solution along with the above series. After one and a half hours at 37° C. the test corpuscles, 1 c.c. of a 5 *per cent.* suspension of washed ox-blood, sensitised previously with at least five minimum doses of immune body from the rabbit, are added. The mixtures are again incubated, and the result is read at the end of one and a quarter hours, when the tubes are removed from the incubator. After standing overnight at room temperature the reading is again taken; both results are almost identical in every case. The accompanying table gives the details of an experiment performed according to this method, showing the comparative deviating properties of a syphilitic and a normal serum. In this experiment the amount of complement necessary to lyse 1 c.c. of sensitised ox-blood corpuscles was 0.01 c.c.

Series A shows that, whereas 0.01 c.c. of complement is sufficient to lyse 1 c.c. of sensitised ox red blood-corpuscles, 0.02 c.c. of complement is necessary when 0.1 c.c. of alcoholic extract of liver is present; that is to say, 0.6 c.c. of the emulsion of organ-extract is by itself able to absorb one dose of hæmolytic complement.

Series B shows that as regards power of complement absorp-

tion the two fluids are alike, each being able to absorb one dose of hæmolytic complement.

Series C shows that the fluid from the general paralytic in presence of the liver extract has absorbed over forty doses of complement, whereas that from the case of epilepsy with the same extract has not been able to absorb seven.

TABLE I.—*Showing the Comparative Deviating Properties of a Positive and a Negative Serum.*

SERIES A.	(1)	(2)	(3)	(4)		
Emulsion of extract of liver . . .	0.6	0.6	0.6	0.6		
Complement	0.01	0.02	0.03	0.04		
Sensitised ox red blood-corpuscles (added after 1½ hours)	1.0	1.0	1.0	1.0		
SERIES B.	(5)	(6)	(7)	(8)		
Cerebro-spinal fluid (general paraly- sis) (in 0.6 c.c. normal saline) . .	0.1	0.1	0.1	0.1		
Complement	0.01	0.02	0.03	0.04		
Sensitised ox red blood-corpuscles (added after 1½ hours)	1.0	1.0	1.0	1.0		
	(9)	(10)	(11)	(12)		
Cerebro-spinal fluid (epilepsy) (in 0.6 c.c. normal saline)	0.1	0.1	0.1	0.1		
Complement	0.01	0.02	0.03	0.04		
Sensitised ox red blood-corpuscles (added after 1½ hours)	1.0	1.0	1.0	1.0		
SERIES C.	(13)	(14)	(15)	(16)	(17)	(18)
Liver extract emulsion	0.6	0.6	0.6	0.6	0.6	0.6
Cerebro-spinal fluid (general paraly- sis)	0.1	0.1	0.1	0.1	0.1	0.1
Complement	0.07	0.1	0.15	0.2	0.3	0.4
Sensitised ox red blood-corpuscles (added after 1½ hours)	1.0	1.0	1.0	1.0	1.0	1.0
	(19)	(20)	(21)	(22)	(23)	(24)
Liver extract emulsion	0.6	0.6	0.6	0.6	0.6	0.6
Cerebro-spinal fluid (epilepsy) . .	0.1	0.1	0.1	0.1	0.1	0.1
Complement	0.07	0.1	0.15	0.2	0.3	0.4
Sensitised ox red blood-corpuscles (added after 1½ hours)	1.0	1.0	1.0	1.0	1.0	1.0

Figures in black type indicate that lysis has occurred in this tube.

Following this method thirty cases of general paralysis and thirty cases of mental disease other than general paralysis were examined. The reaction was considered positive when

lysis was incomplete with five hæmolytic doses of complement in addition to the sum of the amounts inhibited by cerebro-spinal fluid and by emulsion alone. With regard to the results of the experiments it was found that twenty-eight out of the thirty cases of general paralysis reacted positively, while the remaining two were negative. In none of the thirty other cases was there a positive reaction. As regards the intensity of the reaction, as measured in amounts of complement absorbed, it was found that less complement was on the whole absorbed by fluid from early cases than by fluid from late cases. The relation of the occurrence of the Wassermann reaction, and of its intensity when present to constituents of the cerebro-spinal fluid, will be referred to later.

(2) *Cobra Venom Reaction.*

In 1902 Flexner and Noguchi (6) published the results of a series of experiments on the nature of the hæmolytic properties of cobra venom. These authors found that although red blood-corpuscles whose serum has been completely removed by washing with salt solution are agglutinated by snake venom, they are not dissolved. Hæmolysis, however, occurs if serum be added to the corpuscles and venom, or if the venom be added to the corpuscles without washing out the serum. From these observations these authors were led to the conclusion that snake venom is made up of a number of substances, acting after the manner of amboceptors, which are activated by the complements of the fresh serum. The subject was further studied by Kyes (7), who discovered that there are two kinds of blood-cells so far as their behaviour towards cobra venom is concerned:

(1) Those that in themselves are destroyed by cobra venom.

(2) Those that are lysed by cobra venom only after the addition of other substances (complements, etc.).

Those belonging to the first class are the red blood-cells of the guinea-pig, dog, rabbit and man, while the second class is represented by the corpuscles of the ox, sheep and goat. It was further determined that certain sera which activate cobra venom lose this property when heated for an hour at 57° C.; this applies, for example, to guinea-pig serum when placed along with cobra venom and ox corpuscles; from this it has

been concluded that the activation is due to serum complement in the restricted sense of the term. Other sera, however, *e.g.*, human sera, do not lose their activating power when heated at 57° C., and by extraction with alcohol it was found that the lecithin in blood-serum possesses strong activating properties; it was thus concluded that lecithin is probably the substance in such sera which produces the activation; and in the case of blood-corpuscles which are lysed without the addition of serum it was suggested that a "disponible lecithin" in the blood-corpuscles commenced the activation, and that it was completed by the lecithin set free from the degenerating stromata. Another advance in the study of the subject was accomplished by Kyes and Sachs when they discovered that as regards their effect on the hæmolytic action of cobra venom lecithin and cholesterin possess antagonistic properties, the activating power of lecithin being inhibited by cholesterin; and again in the case of an alcoholic extract of blood-serum it was found that while the alcohol extracted activating substances, the precipitate possessed inhibitory properties.

The application of the principles involved in these experiments to the examination of the cerebro-spinal fluid were carried out as follows:

Ox corpuscles were washed free of the serum by repeated centrifugalising with normal saline solution; 3 c.c. of washed sediment were made up to 100 c.c. with normal saline, this giving approximately a 5 *per cent.* suspension of ox red blood-corpuscles; the corpuscles were then sensitised with cobra venom in the proportion of 1 c.c. of a 1 : 1,000 solution to 10 c.c. of blood suspension; this suspension was used as a reagent for the detection of activating substances in the cerebro-spinal fluid. In the first place fresh cerebro-spinal fluid was added to the corpuscles and the mixture incubated at 37° C. for two hours and the results examined on the following day. On no occasion, however, was it possible to demonstrate the presence of activating substances in the fresh fluid. The fluids were, in the second place, extracted with alcohol, in the proportion of one part of fluid to four parts of alcohol (96 *per cent.*). This was allowed to stand at room temperature for three or four days. The amount of the precipitate was registered in each case; this will be referred to later on. The precipitate was allowed to settle or the mixture was centrifugalised and the

extract pipetted off. The alcoholic extract was then diluted with normal saline in the proportion of one part of extract to four parts of normal saline; the lytic power of the mixture on ox corpuscles sensitised with cobra venom was then tested. It was found that the mixture thus prepared had no activating effect on the cobra venom. On filtering with filter-paper (No. 595 Schleicher and Schülz) slight activating properties manifested themselves with comparatively large doses of the mixture. If, however, the mixtures were first boiled and then filtered the activating properties were demonstrable with comparatively small doses. Table II shows an experiment of this kind:

TABLE II.

Mixture made without Heating or Filtering Alcoholic Extract.

Cerebro-spinal fluid.	Alcohol precipitate.	Amount of extract which activated cobra venom.				
		0.3 c.c.	0.5 c.c.	0.75 c.c.	1 c.c.	1.5 c.c.
No. 6	0.1	o	o	o	o	o
" 7	0.1	o	o	o	o	o
" 8	1.4	o	o	o	o	o
" 9	1.2	o	o	o	o	o

Mixture made without Heating, but after Filtering Alcoholic Extract.

No. 6	0.1	o	o	o	m	c
" 7	0.1	o	o	t	ac	c
" 8	1.4	o	o	o	o	c
" 9	1.2	o	o	t	c	c

Mixture made after both Heating and Filtering Alcoholic Extract.

No. 6	0.1	o	c	c	c	c
" 7	0.1	o	c	c	c	c
" 8	1.4	o	c	c	c	c
" 9	1.2	c	c	c	c	c

Cases 6 and 7 were dementia præcox; Cases 8 and 9 were general paralytics.

In the various tables the extent of hæmolysis is designated by the following signs: o = no lysis, t = trace of lysis, m = marked lysis, ac = almost complete lysis, c = complete lysis.

Here the four fluids are examined under different conditions. In the first series no lysis occurs; in the second series, where the extracts had been filtered there was lysis with the larger

doses, whereas where the extracts were heated before filtering the lytic dose is much smaller. A considerable variation is noticeable in the amount of lytic substance present in each case, and it is also evident that the amount of lytic substance does not bear any relation to the amount of precipitate present in the original mixture of cerebro-spinal fluid and alcohol. It was also obvious from an examination of a large number of cases that the fluids from cases of general paralysis did not, on the whole, contain these activating substances in greater amount than the fluids from other cases of mental disease. The extent to which the process of filtration affects the result will be referred to later. The filter paper which was used in separating the extract does undoubtedly contain substances which have hæmolytic properties, but not in sufficient amount to account for the results of the experiments referred to.

Experiments were also performed with a view to demonstrating the presence of inhibitory substances in the cerebro-spinal fluid. The method adopted was as follows:

It was found that the emulsion made from alcoholic extract of ox-liver, and used for carrying out the Wassermann reaction, possessed an activating power for cobra venom with ox-corpuscles in a dosage of 0.075 c.c. for 1 c.c. of sensitised ox-corpuscles. To a series of tubes increasing doses of fresh cerebro-spinal fluid were added (0.25, 0.5, 0.75, 1 c.c.), and to each tube was added 0.1 c.c. of emulsion. This was allowed to incubate at 37° C. for an hour, and then the ox-corpuscles sensitised with cobra venom were added, and the mixture again allowed to incubate for two hours. It was found that in few cases inhibition did occur; these, however, were cases in which there was a considerable amount of cellular elements in the fluid, and the inhibitory effect disappeared on centrifugalising. The mixture of alcoholic extract of cerebro-spinal fluid and saline did not exhibit inhibitory properties, nor did the precipitate formed by adding alcohol to the cerebro-spinal fluid. It must, however, be concluded from the results of experiments, of which that shown on Table II is an example, that a mixture of cerebro-spinal fluid and alcohol does contain both activating and inhibitory substances; the activating substances are more manifest after heating and filtration, and it is probable that in the process of filtration absorption of inhibitory substances takes place, thus leaving the activating substances free.

(3) *Chemical Examination.*

In making comparative examinations of the amounts of precipitable substances in different samples of cerebro-spinal fluid the following methods were employed :

(1) Each fluid was mixed with alcohol in the proportion of one part of fluid to four parts of alcohol ; the mixtures were well shaken, and samples of each placed in glass tubes of equal diameter. By means of standardised dilutions of a mixture of alcohol and blood-serum definite standards of comparison were fixed. The results of such a comparison are shown in Table III. These figures, representing the varying amounts of precipitate in different mixture, do not represent absolute amounts, only the amount of precipitate in one case compared with the amount in another.

TABLE III.

Cerebro-spinal fluid.	Alcohol precipitate.	Wassermann reaction, doses of complement absorbed.	Amount of emulsion which activated cobra venom.
No. 21	1.0	30	1 c.c.
" 22	1.4	40 —	0.75 "
" 23	0.8	10	0.75 "
" 24	1.0	20	1 "
" 25	0.6	10	0.75 "
" 26	1.2	10	0.75 "
" 27	0.8	7	0.75 "
" 28	0.8	24	0.5 "
" 29	1.2	12	0.5 "
" 30	0.3	30	0.5 "
" 31	0.8	12	0.75 "
" 32	0.2	40	0.6 "
" 33	1.0	24	0.75 "
" 34	0.4	40	0.3 "
" 35	0.2	0	0.75 "
" 36	0.1	0	0.75 "
" 37	0.2	0	0.5 "
" 38	0.2	0	0.75 "
" 39	0.2	0	1 "
" 40	1.0	0	0.75 "

Cases Nos. 21–34 suffered from general paralysis, while Nos. 35–39 were cases of dementia præcox and melancholia.

On reviewing the results recorded in this table, it is obvious that a great variation exists in the amount of precipitable substances in different cerebro-spinal fluids. On the whole the precipitate is more abundant in cases of general paralysis, although there are instances, *e.g.*, No. 40, where the amount of precipitate was considerable, yet the Wassermann reaction was negative.

When one compares the amounts of precipitate in the various cases with the intensity of the Wassermann reaction, as estimated by the number of doses of hæmolytic complement which has been absorbed, one finds that there is no direct relationship. A fluid such as No. 26 yields a precipitate with alcohol represented by 1·2, and in the Wassermann reaction absorbs ten doses of hæmolytic complement, whereas No. 34 yields a precipitate represented by ·4, and in the Wassermann test deviates over forty doses of complement. Again, Nos. 27 and 28 contain each an amount of precipitable substance represented by 0·8; while in the Wassermann test No. 27 absorbs seven doses of complement and No. 28 absorbs twenty-four doses. There is thus no relationship between the intensity of the Wassermann reaction and the fluid content of substances precipitable by alcohol.

Table III shows, further, a comparison of the content in precipitable substances with the activating power of the alcoholic extract of the various cerebro-spinal fluids, and also a comparison of the intensity of the Wassermann reaction with the activating power of the same extracts. It is obvious here also that no relationship exists between these phenomena. Cases 22 and 23 deviate forty and ten doses of complement respectively, yet when extracts of these fluids are made their activating effect for cobra-venom is exactly the same, *viz.*, 0·75 c.c.; and with regard to the relationship of the amount of precipitate to the activating power of the alcoholic extract, Case 21, with a precipitate represented by 1·0, has an activating power in doses of 1 c.c.; while Case 29, with a precipitate of 1·2, has activating power in doses of 0·5 c.c.; and Case 34, with a precipitate of 0·4, has an activating power in doses of 0·3 c.c. With regard to Cases 35 to 40, the same variation with absence of relationship between the phenomena compared seems to exist. The Wassermann reaction is negative in all these cases; there is a variation in precipitable content between

0.1 and 1.0, and in the activating power of their alcoholic extracts between 0.5 c.c. and 1.0 c.c.; Cases 38 and 40 have the same activating dose for cobra venom, still, the former has an alcoholic precipitate represented by 0.2, while the latter has a precipitate represented by 1.0. The result which transpires from the experiments just described is that the cerebro-spinal fluids from general paralytics can be distinguished from that of other cases by a positive Wassermann reaction. The fluids which give a positive Wassermann reaction have a high content of substances precipitable by alcohol, but there is no relationship between the intensity of the Wassermann reaction and the amount of this content; there is, further, no relationship between the amount of the precipitable content, the intensity of the Wassermann reaction, and the presence of extractable substances which activate cobra venom.

(2) In the second place the protein content of the various fluids was estimated by Noguchi's method (9), and comparisons were made similar to those described in the preceding paragraphs. For the protein estimation 0.2 c.c. of spinal fluid was added to 0.5 c.c. of a 10 *per cent.* butyric acid solution; this was boiled for a few seconds over a flame, and then 0.1 c.c. of pure NaOH was added quickly, and the whole once more re-heated. The tubes were allowed to rest for half an hour, when the density and character of the resulting precipitate were noted. A positive result was recorded when a coarse granular or flocculent precipitate appeared; when the precipitate was only in the form of a slight uniform opalescence the result was regarded as negative. Table IV shows the results of such an experiment, and a comparison with the results of other tests applied to the same fluids at the same time.

In Table IV the Noguchi test for protein content is compared in the first instance with the Wassermann reaction. No. 50, which gives a negative Wassermann reaction, is distinctly positive to the Noguchi test. Nos. 54 to 59 give a positive syphilitic reaction, while two out of the same six give a negative butyric acid reaction, the remaining four being positive. The same spinal fluids were boiled and acidulated with dilute acetic acid; Nos. 50, 55, 56 and 59 showed a trace of precipitate, the others did not. It is here to be noted that, while No. 50 gave a negative Wassermann reaction

and a positive Noguchi reaction, a precipitate is present on boiling and acidulating. The globulin content of the fluids were then determined by mixing equal parts of spinal fluid and saturated ammonium sulphate. It is noticeable that the precipitation obtained by this method is strictly comparable with that observed by the Noguchi test. The results of the precipitation by ammonium sulphate as detailed in the table is based on the standard used for estimating the amount of precipitation by alcohol; this is also detailed in the last column in Table IV. It will be seen on comparison that there is a very definite correspondence between the butyric acid

TABLE IV.

Cerebro-spinal fluid.	Wassermann reaction.	Boiling and dilute acetic acid precipitate.	Half satur'd ammon. sulph. precipitate.	Noguchi's test.	Alcohol precipitate.
No. 50	. — .	trace	. 1'4 .	+	. 1'2
„ 51	. — .	o	. o .	—	. 0'1
„ 52	. — .	o	. o .	—	. 0'1
„ 53	. — .	o	. 0'1 .	—	. 0'2
„ 54	. + .	o	. 0'1 .	—	. 0'2
„ 55	. + .	trace	. 0'6 .	+	. 0'8
„ 56	. + .	trace	. 0'6 .	+	. 0'8
„ 57	. + .	o	. 0'3 .	+	. 0'4
„ 58	. + .	o	. 0'1 .	—	. 0'2
„ 59	. + .	trace	. 1'2 .	+	. 1'6
„ 60	. — .	o	. 0'1 .	—	. 0'2

precipitation and that of ammonium sulphate, and also that by alcohol. On the whole the density of the precipitate is greater with alcohol than with ammonium sulphate; an exception to this is seen in Case 50, where the ammonium sulphate precipitate is recorded as 1'4 and that by alcohol as 1'2. Again, some fluids failed to show any precipitation or cloudiness on semi-saturation with ammonium sulphate, but no sample of spinal fluid was examined which did not show at least a turbidity on the addition of alcohol. It was seen from Table III that no relation existed between the amount of alcoholic precipitate and the intensity of the Wassermann reaction or the deviating power of the extract of spinal fluid; and

inasmuch as a close correspondence exists between the various precipitates produced by the different methods, it follows that there is also no relationship between the intensity of the Wassermann reaction and the density of the precipitate thrown down by ammonium sulphate or the Noguchi method. It is therefore unlikely that the substances in the cerebro-spinal fluid which are indispensable to the production of a positive Wassermann reaction are of a protein character pure and simple, or that they are substances which have an activating effect on cobra venom; this would suggest that they are not lipoidal in constitution, because lipoids do, as a rule, possess activating properties; and in any case the substances characteristic of the spinal fluid of general paralytics cannot be extracted with alcohol.

(4) *The Filtration of Extracts of Spinal Fluid.*

It has already been pointed out that the presence of activating substances in the alcoholic extracts of cerebro-spinal fluids can be determined only after filtration. If a mixture were allowed to sediment, and the supernatant fluid pipetted off, this fluid did not, as a rule, show activating properties; when filtered, however, or still better, when heated and filtered, the presence of activating substances in the filtrate could easily be shown. It was, however, necessary to control such an experiment by an examination of the filter-paper used, in order to determine whether the paper itself might not contain substances which might pass into the filtrate. It was actually found that alcohol did extract from the filter-paper (Schleicher and Schülz, No. 595) a small quantity of lytic substances. The amount of lytic substances extracted, however, by the small quantity of alcohol used in these experiments does not invalidate the general results, although the absolute amount of activating substances in the alcoholic extract of spinal fluid must be less than that shown in the experiment after the heated extract has been filtered. A series of experiments were performed in order to determine to what extent substances possessing lytic properties could be extracted from the filter-paper employed. Table V gives the result of such an experiment :

TABLE V.

Amount of mixture of extract and saline in each tube	1 c.c. 5 per cent. ox corpuscles and cobra venom.					Corpuscles without cobra venom.	
	0'3	0'5	0'75	1'0	1'5	1'0	1'5
1. Paper, water, ether, alcohol, emulsion with saline 1 in 6	o	m	c	c	c	o	c
2. Paper, ether, alcohol, emulsion with saline 1 in 6	o	o	c	c	c	o	c
3. Paper, alcohol, emulsion with saline 1 in 6	t	c	c	c	c	c	c
4. Alcohol, emulsion with saline 1 in 6	o	o	o	o	o	o	o
5. Alcohol, filtered through paper boiled in alcohol, emulsion with saline 1 in 6	o	o	o	o	o	o	o
6. Alcohol, filtered through paper boiled in ether, emulsion with saline 1 in 6	o	o	o	o	o	o	o
7. Alcohol, filtered through paper boiled in water, emulsion with saline 1 in 6	o	o	o	o	o	o	o
8. Alcohol, boiled, filtered through ordinary filter-paper, emulsion with saline 1 in 6	o	o	o	o	t	o	o

In Series 1 twenty pieces of filter-paper were boiled in 100 c.c. of water for one minute; the water was evaporated and the residue taken up in ether; this was again evaporated and the residue taken up in 20 c.c. of alcohol. A mixture was made of one part of the alcoholic solution to five parts of normal saline, and it was found that 0'5 c.c. of this mixture was sufficient to lyse 1 c.c. of a 5 per cent. suspension of ox-corpuscles to which cobra venom had been added; 1 c.c. of the mixture had no effect on ox-corpuscles without cobra venom. While this may not be a case of real activation of cobra venom, still, it proves that certain substances may be extracted from the filter-paper by hot water, and that these substances might influence cobra venom activation.

Series 2 and 3 show that similar substances are extracted from the filter-paper by means of ether and alcohol.

Series 4 shows that the alcohol alone in the amount used does not influence the corpuscles.

Series 5, 6, and 7 show that by treating the filter-paper first with alcohol or ether it is possible to get rid of the lytic substances.

Summary of Results.

(1) A positive Wassermann reaction was present (with the spinal fluid) in twenty-eight out of thirty cases of general

paralysis; the spinal fluids of thirty cases of epilepsy and dementia præcox gave a negative reaction.

(2) A quantitative estimation of the intensity of the reaction, in terms of hæmolytic doses of complement, showed that great variation exists from case to case; speaking generally, the more advanced the case the greater the amount of complement absorbed.

(3) Fresh cerebro-spinal fluid possesses no activating properties for cobra venom; certain fluids rich in cellular content were found to inhibit the activating power of alcoholic extract of liver; this inhibitory action disappeared when the cellular elements were centrifugalised.

(4) Mixtures of cerebro-spinal fluid and alcohol present varying degrees of turbidity; as a rule the greatest degree of turbidity is seen in cases of general paralysis, but equally turbid mixtures were observed with fluids from cases of epilepsy and dementia præcox in their acute phases.

(5) There is no relationship between the degree of turbidity and the amount of complement absorbed in the Wassermann reaction; a fluid which, with an equal volume of alcohol, gives rise to an opalescent mixture may deviate more hæmolytic complement in the Wassermann test than a fluid which, with alcohol, gives rise to a markedly cloudy precipitate.

(6) An alcoholic extract of cerebro-spinal fluid when heated and filtered is found to contain substances which produce lysis of ox-corpuscles sensitised with cobra venom. The precipitate does not possess inhibiting properties in a dilution equal to that in which the precipitable substances are present in the spinal fluid.

(7) The strength of this lytic property bears no relation to the density of the precipitate in the mixture of alcohol and spinal fluid or to the amount of complement deviated by the fluid in a Wassermann test.

(8) No difference between general paralytics and other cases of mental disease could be determined in respect of the content of the extract of spinal fluid in substances which activated cobra venom; it is thus questionable whether the Wassermann reaction is due to substances of a lipoid character in the fluid.

(9) Examination of the protein content of the spinal fluid by precipitation with ammonia sulphate, and also by the Noguchi method, showed that there is a close correspondence between

these methods of precipitation and the precipitation by alcohol. A few cases of dementia præcox were found with a high protein content, just as they sometimes show a considerable precipitate with alcohol.

(10) There is, however, no relationship between the protein content of the spinal fluid and the intensity of the Wassermann reaction. Most cases of general paralysis show a high protein content in the spinal fluid, but a fluid with a low protein content may give a strong Wassermann reaction, and a fluid with a high protein may give a weak reaction. Cases of dementia præcox with a high protein content do not give a Wassermann reaction.

(11) In filtering alcoholic or ethereal extracts allowance must be made for the fact that certain lytic substances in the filter-paper may be extracted.

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Pituitary and Supra-renal Growths in a Case of Insanity.⁽¹⁾ By E. BARTON WHITE, M.R.C.S., L.R.C.P. Lond., Assistant Medical Officer, Cardiff City Mental Hospital, and H. A. SCHOLBERG, M.B.Lond., D.P.H., Hon. Pathologist, Cardiff Infirmary, Pathologist to Cardiff City Mental Hospital.

WE have ventured to bring forward the following case for various reasons. The first is the unusual distribution of the lesions found *post-mortem*, namely, in the supra-renal capsules and the pituitary body. The second is that during life the clinical features of the case were not sufficiently pronounced

unmistakably to suggest any affection of the parts shown to be diseased at the necropsy. The third and most important consideration is that a narration of the facts raises the question of the significance of pathological changes in the ductless glands in the insane.

Patient, E. M—, male, æt. 64, labourer, believed to be married, but no trace of any relatives or friends can be found, so no family history is available.

He was admitted to Brighton County Borough Asylum on December 11th, 1906. His mental state there was described as follows: He was suffering from mania with hallucinations, both visual and auditory. He developed a delusion that a woman was locked up in the room above his and that she was being brutally ill-treated. He used to hear the woman's voice and converse with her. When transferred to Cardiff City Mental Hospital on June 10th, 1908, having passed into a stage of dementia in a few months, he presented the following appearance: An anæmic man with features of a rather degenerate type and with several atavistic stigmata of a minor degree; small eye fissures, prominent malar bones, ears of simple type, the anti-tragus and anti-helix being insufficiently developed. Darwin's tubercle was evident. The ears and the face, however, were symmetrical. The lips were full and prominent, palate normal, teeth few and carious. Tongue of normal size and shape. No exophthalmos; no ocular palsies. He was addicted to masturbation and had to be operated on for paraphimosis. He had various delusions of an erotic nature, and showed signs of perversion towards the younger male patients. The patient further complained that his head was splitting in two and that rats were running about inside him. About February, 1910, he became feeble, disinterested in his surroundings, and lacking in attention. One of us was called to see him on the evening of May 2nd, 1910, as he was described as being in a "low state." The patient was then confined to his bed; his breathing was shallow, but occasionally sighing in character. Pulse 40, tension low. His temperature was below 95° F. He gradually sank into a state of somnolence with some delirium and muscular twitchings, and died in a condition of coma at 2 a.m. the following morning.

It may be mentioned that his urine contained no albumen or sugar.

Post-mortem Examination.

General external appearances.—Well-nourished man. Frontal eminences well marked; superior maxillary bones increased in size, with an increase in prominence of the malar processes. Inferior maxilla small. Lips very thick and prominent. Hands somewhat spade-like, loose tissues thickened, skin coarse. Thickening round the ankles and knee-joints. Femora thickened and ridges of muscular attachments very well marked.

Thorax.—Rib cartilages not calcified; bony ribs natural; no fractures present.

Lungs.—Old pleural adhesions at both apices; no tubercle present. The right upper lobe was in a condition of grey hepatisation. The rest of the lung tissue was engorged and oedematous.

Heart.—Epicardial fat in fair quantity; muscle pale and friable; no hypertrophy. Cavities normal, mitral valve thickened; aortic valves natural; coronary arteries atheromatous. The aorta showed a well-marked atheroma extending from the sinus of Valsalva upwards. Thyroid natural to the naked eye.

Abdomen.—Peritoneum normal. Appendix and cæcum bound down by old adhesions. Mesenteric glands slightly enlarged and firm, but showing no evidence of tubercle. Stomach and intestines natural.

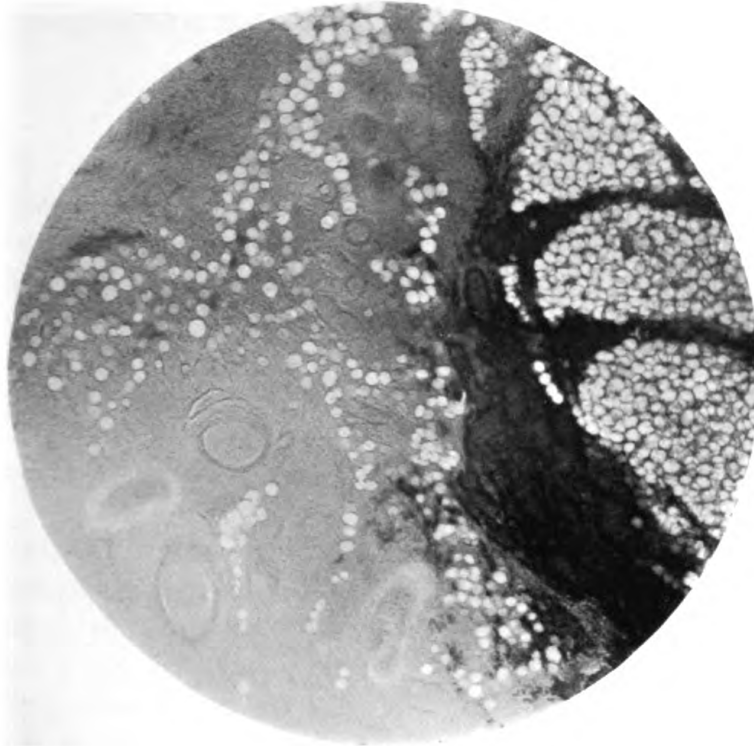
Liver.—1,300 grm.; fatty; no increase in fibrous tissue to the naked eye.

Spleen.—120 grm.; congested and soft. *Pancreas* natural.

Kidneys.—225 grm. for both. Capsules slightly adherent, and an increase in the quantity of the pelvic fat; no cyst formation.

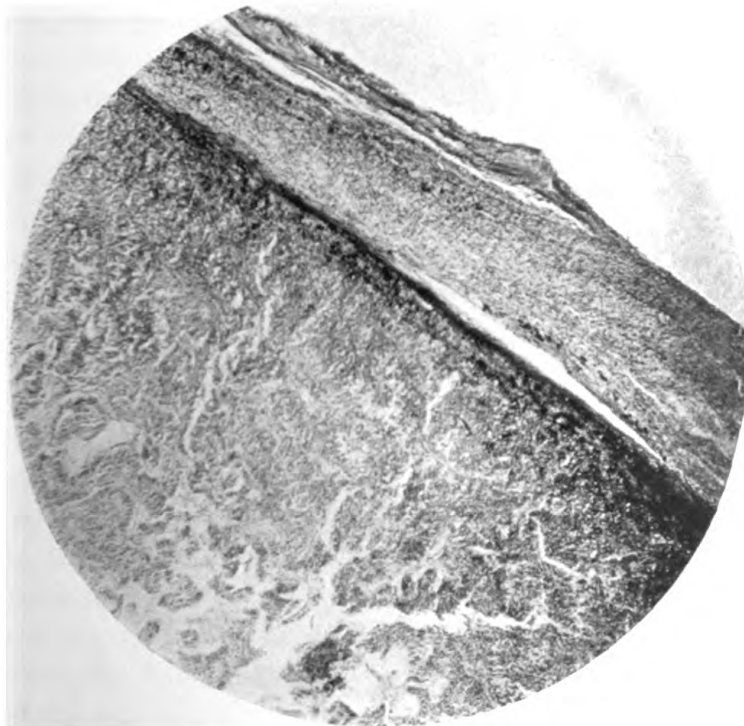
Bladder.—Normal.

Supra-renal bodies: Macroscopic appearance.—Both these organs were enlarged and embedded in a quantity of fat. The left organ was considerably larger than the right, of a rounded, pyriform shape and of a firm degree of consistence, and possessed of a very rich vascular supply. The organ, which shelled out easily from the surrounding parts, was of a deep red chocolate colour, and measured 5 cm. by 3.1 cm. by 3.1 cm. The thickened capsule stripped readily, and was of an average thickness of 0.15 cm.



E.B.W. Photo.

FIG. 1.—*Left suprarenal*. Showing vascularity, blood extravasation, and fatty degeneration. Absence of chromaffin tissue. [Stained by Weigert's method.]



E.B.W. Photo.

FIG. 2.—*Pituitary growth*. Showing thickened capsules. [Stained by hæmatoxylin.]

An antero-posterior section through the longest diameter showed a number of medium-sized blood-vessels lying immediately under the capsule; the cortex could only be recognised in a few places, almost the whole having been replaced by an effusion of blood (*vide* drawing), which in the central parts was paler and firmer, while the more peripheral portions were brightly mottled by a more recent hæmorrhage. There were no areas of necrosis or cyst formation.

The right supra-renal, though of nearly normal size, was similar to the left, the only difference being that the capsule of the organ was less thickened and vascular, and that there was only a partial destruction of the cortical and medullary areas.

Microscopic examination.—Sections were cut in celloidin and stained with hæmatoxylin and eosin, by van Gieson's and Weigert's method, and with potassium bichromate. The microscopic findings do not call for any detailed description. The connective-tissue capsule is (left supra-renal) extremely vascular, and encloses a large number of fat cells, and beneath this are found here and there the remains of the cortical layer of the gland. The medulla of the gland is not recognisable, having been entirely replaced by blood-clot, which is partly organised (*vide* photo No. 1). The right supra-renal capsule is like its fellow, the only difference being that the cortex has not suffered to the same extent, and the medulla is represented by a small collection of chromaffin tissue.

Head.—The bones of the vault of the skull were densely compact, but not markedly increased in thickness. The frontal sinuses were not strikingly enlarged, though there was a noticeable bossing of the frontal and parietal eminences. Mastoid processes and spaces normal. Dura mater normal and not adherent anywhere.

Brain.—Membranes: Pia mater, though opaque and thickened in places, especially over the parietal area, stripped readily from the surface of the brain. The cortical convolutions showed the ordinary degree of complexity, but were slightly atrophied, and the intersulcal spaces were wider than normal.

On removing the brain the pituitary body was exposed, and found to be enlarged; the weight of the gland broke the pituitary stalk, which was further very soft and atrophied. The rest of the structures at the base of the brain were normal,

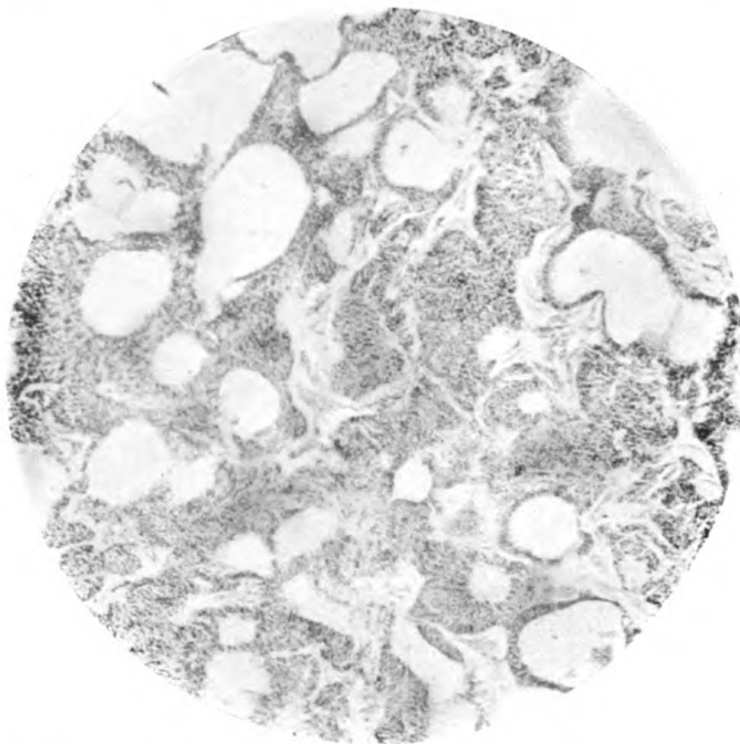
though there was local evidence of a slight increase of intracranial pressure.

The dissection of the brain showed a certain amount of cortical atrophy, the striæ of the centrum ovale majus were obliterated, and the vascular supply deficient. There were no areas of softening or signs of old or recent hæmorrhage into the substance of the brain. The ventricles were dilated, and contained excess of fluid, the ependyma smooth, the choroid plexus natural. The crura, pons, and medulla were normal. The arteries at the base of the brain were atheromatous.

The pituitary body.—This shelled out quite easily from the sella turcica, and did not appear to have involved the neighbouring vessels and nerves. On the other hand, the bony area supporting the gland was excavated to accommodate the enlarged organ. The pituitary body was about the size of a pigeon's egg, and measured 2·8 cm. by 1·9 cm., was soft, and of a greyish colour, and covered with a firm connective-tissue capsule over which ran a large blood-vessel supplying the anterior part of the pituitary. When the capsule was peeled off in places the underlying structures were of a maroon colour, with mottled yellowish areas. A vertical section showed that the gland was solid throughout, there being no evidence of cyst formation. The pars glandularis could not be differentiated from the pars nervosa, though it was clear from the naked-eye appearance that the enlargement was entirely due to the increase in size of the anterior portion. The pars nervosa and attached pars intermedia were relatively unaltered, there being present on microscopic examination the usual appearance of colloid.

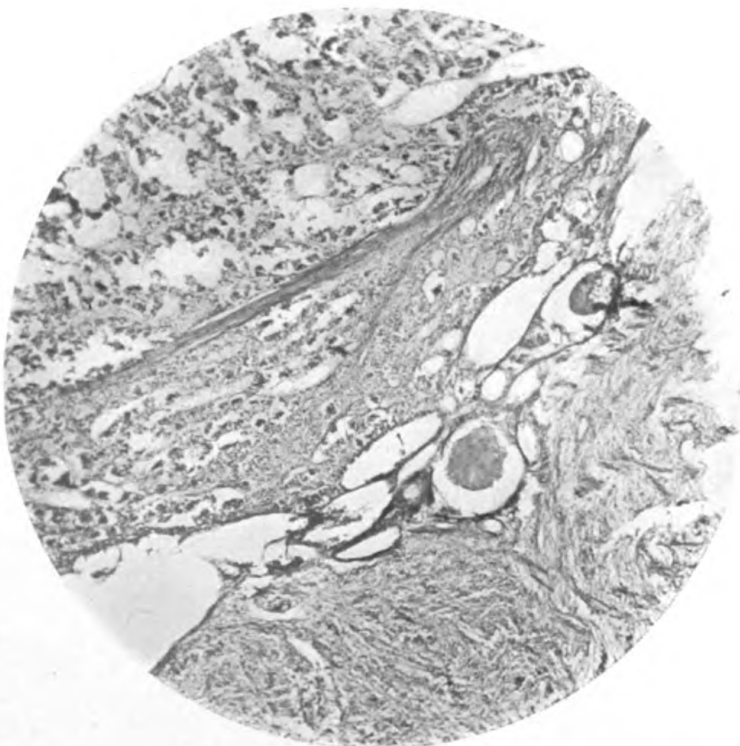
Microscopic examination.—Sections were cut in celloidin and stained by various methods. The structures to be differentiated were: (a) The connective tissue forming the capsule and supporting framework of the substance of the pituitary body; (b) the vascular supply, which was rich, and found filling the large interspaces between the acini of the pars glandularis; (c) the glandular elements; (d) the colloid-containing area in the neighbourhood of the pars intermedia; (e) the pars intermedia; and (f) the pars nervosa. Describing these structures in further detail:

(a) *The connective-tissue framework.*—This forms the firm capsule which encloses the pituitary body, and can be differen-



E.B.W. Photo.

FIG. 3.—*Pituitary growth.* Pars glandularis, showing irregular alveolation, vascularity, and blood extravasations. [Stained by acid-haematoxylin.]



E.B.W. Photo.

FIG. 4.—*Normal pituitary body.* Showing anterior lobe or pars glandularis, pars intermedia with colloid, posterior lobe or pars nervosa. [Stained by haematoxylin.]



E. B. W. del.

FIG. 5.—Section of suprarenal tumour (left side).
Natural size.

To illustrate Mr. E. BARTON WHITE'S and Mr. H. A. SCHOLBERG'S paper.

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tiated into layers which support a rich network of blood-vessels. The connective-tissue stroma supporting the glandular elements and smaller blood-vessels is more delicate and richly cellular than that nearer the surface. As it is traced backwards a septum is sent in separating the pars intermedia and pars nervosa from the pars glandularis (*vide* Photo No. 2).

(b) *The vascular supply.*—This does not call for any further comment beyond drawing attention to the fact that the acini of the pars glandularis appear to be directly in contact with large blood-spaces, which are shown well in the microphotograph No. 3.

(c) *The glandular elements.*—These constitute the greater bulk of the enlarged pituitary body and are entirely of the type of cell found in the pars glandularis. The cells are irregularly oval in shape, have a nucleus which stains well with nuclear dyes, and a less deeply coloured protoplasm which in places is faintly granular. The cells are arranged for the most part in groups forming acini, or they may be massed into groups showing no definite arrangement, this being particularly well marked in the neighbourhood of the blood-spaces. The lymph-spaces are numerous and easily identified as they lie between the glandular cells and the supporting connective tissue. The cells in the posterior part of the gland (*d*), though few in number, have a different character. They belong to the pars intermedia, are arranged on no definite plan, and lie in part in a colloid matrix. The cells stain deeply, and are smaller than those found in the anterior portion of the pituitary. There does not appear to be any ciliated epithelium present, and the pars intermedia—

(e) Is for the most part represented by the cells and colloid material already mentioned, with the addition of a few cells, containing large granules of brown pigments, which are situated at the periphery and lie in the connective tissue capsule.

The pars nervosa (*f*) is represented by a thin layer of neuroglia tissue.

Remarks.

As stated in the opening of this communication, our first reason for bringing forward this case was the rarity of the occur-

rence of a simultaneous lesion in the supra-renal and the pituitary body. So far as we have been able to ascertain by reference to literature accessible to us we have not found any record of a similar case. That the thyroid and pituitary body often show coincidently changes of a pathological nature has long been known, and the close inter-relationship of these two organs has been indicated since Ord, Gull and Horsley established the pathology of myxœdema.

In making comments on the clinical aspects of this case our remarks are largely of a retrospective character. The signs and symptoms to which we have drawn attention, though suggested by the original notes of the case, only received their proper value when we attempted to co-ordinate the *post-mortem* changes with those presented by the patient during life. We become wise after the event. Describing the case, then, with the *post-mortem* data before us, we can now say with some degree of confidence that the case was one of early acromegaly associated with mental symptoms.

The face.—The patient, though naturally possessing small facial features, showed a disproportionate development of his superior maxillary bones, which caused the malar processes to be unduly prominent. *The mouth* presented features which are often characteristic of the disease, the lips being very much thickened and protuberant. Unfortunately there is no photograph available to show the facial characters to which we have drawn attention. The patient was one of a large number of cases admitted as a transfer when the Institution was first opened, and was not photographed. *The hands* were somewhat spade-like but not increased in size, though the skin was coarse and the subcutaneous tissues thickened. In the *lower extremities* both ankles and knee-joints showed some peri-articular thickening. The surface of the trunk showed no dystrophic changes, being smooth and natural. With regard to the mental symptoms, all that can be said is that he was suffering from mania with hallucinations of a visual and auditory type, and that during the few months preceding his transference to the Cardiff Mental Hospital he had passed rather rapidly into a condition of dementia.

The delusions were those of a type which indicate a perverted appreciation of sensory stimuli, taking the form of a zoopathia interna. The most striking change was the erotism

and sexual perversion which he displayed towards the adolescent male patients. This persisted till within a short time of his death.

Turning now from the clinical side of the case to a consideration of the facts supplied by the *post-mortem* examination. The first impression suggested by the morbid anatomy was that the enlargement of the pituitary body was possibly of a metastatic nature, secondary to a growth in the supra-renal bodies. This was in accord with the well-known fact that malignant growths in these organs are frequently associated with secondary deposits in the brain. Against this view, however, it could be urged that the primary growths were small for a malignant tumour, and were, moreover, distributed bilaterally. The microscopic examination, however, cleared up the question. The condition of the supra-renals was vascular in origin and due to repeated hæmorrhages into the substance of the glands, more especially on the left side. The extravasation of blood into these organs had destroyed the whole of the chromaffin tissue in the left supra-renal and had, further, considerably reduced it in the right supra-renal. The patient, therefore, had at the time of his death a considerable deficiency of the tissue necessary for the supply of the physiological stimulus controlling the arterial tone of the vascular system of the body. Attention may here be drawn to the fact that though death was due to lobar pneumonia, the pulse throughout was very slow and of low tension and the temperature subnormal. The significance of the changes in the supra-renals with the functional sexual disorders will be commented on later.

Pituitary body.—The increased size of the pituitary body was due to the enlargement of the anterior lobe of that gland. It may be shortly described as an adenomatous tumour. The *pars intermedia* and the *pars nervosa*, though smaller than normal, showed no microscopic changes indicative of a pathological condition. The general character of the gland was such as is found in cases of acromegaly and confirms the diagnosis of this disease, for we have here evidence in support of the clinical features suggestive of Marie's disease. That tumours of the pituitary body, though rare, are frequently associated with mental disorder is well brought out by Boyce and Beadles (1). These observers, in an investigation of the record of 3,000 consecutive necropsies at the Colney Hatch Asylum, found six cases

of tumour of the pituitary body out of a total number of twenty cerebral tumours. Nearly one-third of these were therefore associated with an organ which is essential to life.

Before making any further remarks on the pathology of this case, we would draw attention to the recent work published on the physiology of the pituitary body. This has been admirably presented by Prof. E. A. Schafer (2) in his Croonian Lecture, delivered before the Royal Society in June, 1909. He there gives the results of his own researches and of those he has carried out in conjunction with others. The original work of Oliver and Schafer (3), published in 1895, showed that aqueous or saline extracts of the whole gland, when injected intravenously, produced a rise in blood-pressure comparable to that effected by similar extracts of the supra-renal. Howell (4), in 1898, showed that the substance producing the rise of blood-pressure was confined to the posterior lobe of the gland. Schafer and Herring (5), in 1906, went further, and showed that an aqueous extract of the posterior lobe, which includes the pars intermedia, has a specific action on the renal vessels and the kidney-cells. The renal vessels are dilated, while the majority of the arteries of the body are constricted, thus producing an increased flow of urine, which is due, not only to the local vascular dilatation, but also to the action of the renal cells themselves.

Following the histological differentiation of the pituitary body into an anterior lobe, a pars intermedia, and a pars nervosa or posterior lobe, which is due to the researches of Herring (6), Schafer proceeds to differentiate the physiological functions of these different parts. He concludes that the anterior lobe is related to the growth of the skeletal tissues; that the posterior lobe, including the pars intermedia, produces a colloid material which contains active principles, which act on the heart, blood-vessels, and kidneys, and these substances are taken up, not by the blood-vessels, but pass into the third ventricle *via* the infundibulum, reaching the circulation by an indirect route. Further, Herring (7) has shown that the pituitary body reacts to operative interferences with the thyroid by an increased activity of the cells of the pars intermedia, while the anterior lobe remains unaffected. There is an increased production of colloid in the pars intermedia, which can be seen extending upwards into the floor of the third

ventricle. This observation is confirmatory of the work published by earlier observers, who noted somewhat similar changes in cases of myxœdema (Rogowitsch, Schönemann, Boyce and Beadles). The striking clinical pictures presented by cretinism, myxœdema, exophthalmic goitre, acromegaly, and Addison's disease correspond to definite changes in the ductless glands respectively affected. The first four of these diseases have long been recognised as being directly or indirectly causative of definite forms of mental disorder. There are, however, conditions of altered nutrition present in various insane mental conditions which are common to one or more of the diseases of the ductless glands, but in which changes in these are only vaguely surmised. The general loss of suppleness of the skin and subcutaneous tissues, the change in the character and distribution of the hair, the vaso-motor phenomena presented by the superficial blood-vessels of the body, all these are physical stigmata present in many of the insane, and probably have their origin in disordered function of the organs producing internal secretion. The differentiation of such conditions is beset with the greatest difficulty. It would seem that larval clinical types, if such a term may be hazarded, of affections of the ductless glands in the insane can only unfold themselves in the future, when a detailed clinical record is supplemented by an equally elaborate examination of the chemical changes observed during life and the alterations found in structure and composition after death. The investigator may well imitate the methods of the experimental physiologist and compare weight for weight, by animal experiment, the functional potency of the ductless glands in the normal and insane individual. The case which is the subject of this communication, it is true, does not present great difficulty. It is rather a corrective, showing that there may be considerable changes present in organs without any pronounced clinical symptoms; the symptoms are recognisable rather from the *post-mortem* indications. The mental symptoms and partial acromegaly are almost certainly due to the tumour of the pituitary body; while the condition of the supra-renal capsules suggests a possible explanation of the moral perversion.

(¹) A paper read at the Autumn Meeting of the South-Western Division, held at Bristol, October 28th, 1910.

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The Wassermann Reaction: A More Reliable Technique. By WALTER GILMOUR, M.B., Ch.B., Pathologist, Gartloch Asylum.⁽¹⁾

RECENTLY, Browning, Cruickshank and McKenzie have described a new method of performing the Wassermann reaction. It depends on the fact that a syphilitic serum in the presence of an emulsion of lecithin plus cholesterin absorbs much more complement than in the presence of an equivalent amount of an emulsion of lecithin alone, whereas a negative serum absorbs equal amounts with both emulsions.

The lecithin, which is easily obtained from an alcoholic extract of fresh ox liver, is dissolved in sufficient absolute alcohol to make a 0.75 *per cent.* solution. Saturation of this with cholesterin gives the lecithin-cholesterin solution.⁽²⁾

The lecithin emulsion is prepared by adding one part of the 0.75 *per cent.* solution to seven parts of a 0.85 *per cent.* NaCl solution. It has been definitely shown by Sachs and Rondoni (1), and confirmed by Browning and McKenzie (2), that the more turbid the emulsion is, the better is the reaction with a syphilitic serum.

The greatest turbidity is obtained by slow mixing of the lecithin and salt solutions, and this can be accomplished if the salt solution is put in a test-tube and the lecithin solution then allowed to run slowly on to its surface, and the tube gently rotated. Lecithin gives a fairly turbid, uniform emulsion.

The emulsion of lecithin-cholesterin is prepared in the same way ; it is uniform and very dense.

The emulsion of the crude alcoholic liver extract (used by way of control, *vide* below) is similarly prepared.

In carrying out the Wassermann reaction by the lecithin-cholesterin method, the technique generally is similar to that with the crude alcoholic extract as described by Browning and McKenzie (3).

Two series of tubes are arranged :

(A) Contains 0.6 c.c. of lecithin emulsion + 0.05 c.c. of the serum to be tested, previously heated to 57° C. for half an hour.

(B) Contains 0.6 c.c. of lecithin-cholesterin emulsion + 0.05 c.c. of the serum.

Four sets of controls are always set up :

(a) Containing 0.6 c.c. of lecithin emulsion alone.

(b) Containing 0.6 c.c. of lecithin cholesterin emulsion alone.

(c) Containing 0.05 c.c. of the serum plus 0.6 c.c. of 0.85 *per cent.* NaCl solution.

(d) Containing 0.6 c.c. of 0.85 *per cent.* NaCl solution alone for the estimation of the complement dose.

Increasing quantities of complement (fresh guinea-pig's serum) are added to the tubes of each series.

After incubation at 37° C. for one and a half hours, 1 c.c. of a 5 *per cent.* suspension of ox's red blood-corpuscles, previously sensitised with five doses of immune body from the rabbit, is added to each tube. They are again incubated at 37° C., shaken at intervals of twenty minutes, and at the end of one and a half hours the tubes are removed from the incubator. The reading at this stage is found to be practically always the same as the final reading taken after the tubes have stood over-night at room temperature.

The sera, about 150 in all, have been examined simultaneously with emulsions of lecithin, lecithin-cholesterin, and crude alcoholic extract ; and in this way it has been found possible to establish the superiority of the lecithin-cholesterin method.

It is well known that an emulsion of lecithin with a syphilitic serum may cause absorption of complement (a positive Wassermann reaction). But this is the case only with powerfully reacting sera. With weaker sera the lecithin may give no more deviation than with a normal serum (see Table I).

With the lecithin-cholesterin emulsion, in the presence of a normal serum, the deviation is always practically the same as with the lecithin emulsion (Table II).

In only one out of seventy negative reactions did the lecithin-cholesterin series show the absorption of as much as one dose of complement more than the lecithin series. On the other hand, in the case of positive sera the lecithin-cholesterin emulsion always deviates more complement than the lecithin emulsion (Table II). The amount of this increase varies, but with lecithin-cholesterin in the presence of syphilitic serum there may be five times as much complement absorbed as by lecithin; and the increase tends to be specially well marked where the reaction is weakly positive (Table III).

Thus the reaction depends on the relative amounts of complement absorbed by lecithin and lecithin-cholesterin emulsions, and not upon the absolute amount of complement deviated, as in the original method when a crude alcoholic extract is used.

This obviates to a great extent a difficulty which very frequently arises when the crude extract is used, and which is caused by irregularities in the deviability of complement, depending on individual properties of the complement-containing sera. By the new method, therefore, if the absorption of complement by sera in the presence of lecithin and lecithin-cholesterin is equal, there is an undoubted negative reaction. As before mentioned, an increase of one dose with lecithin-cholesterin is within the limit of a negative reaction. But even a small increase (two or three doses of complement more absorbed by lecithin-cholesterin than by lecithin) is in favour of the serum being positive, and a more marked difference (five doses or more) is conclusive under the conditions stated.

The anti-complementary effect of the emulsions of both lecithin and lecithin-cholesterin is a very constant factor. In practically all cases, both deviate to the same extent and rarely more than two or three doses.

Crude extract emulsion compares very unfavourably with this. Constantly one finds it deviating two to three doses more than the other two and not rarely much more (Table IV). This uniformity is a great advantage which the lecithin-cholesterin method possesses. Because of the excessive anti-complementary effect of the crude extract, about a quarter of

the experiments were vitiated from a diagnostic point of view so far as this reagent was concerned. Under such circumstances the reaction with an undoubted negative serum may appear positive, whereas the lecithin-cholesterin method shows its certainly negative character (Table V). Accordingly the new method effects a considerable saving in time, since only very rarely does one find the lecithin and lecithin-cholesterin emulsions exercising a marked anti-complementary effect, and even then with negative sera the deviation of complement with both emulsions is equal.

A similar difficulty arises in the original method where the serum by itself exerts a marked deviating effect on complement. Here also the advantage of the lecithin-cholesterin method is apparent. Upwards of 150 sera, mostly from asylum cases, have been examined, many of them being repeatedly tested. In general, five or six sera were examined at the same time, and the importance of always having both negative and positive cases in the series was borne in mind. It is considered a point of especial importance to have a known negative serum as a control in every case where the examination is being made for diagnostic purposes. (It is essential in every instance to estimate accurately the inhibitory effect of all the emulsions and of the sera on complement and also to test the complement dose.)

Sixty-five sera from cases clinically diagnosed as general paralysis were examined, and of these 96 *per cent.* gave a positive reaction. It is interesting to note that the blood-serum of one of these cases gave a negative reaction, whereas a positive reaction was obtained with the cerebro-spinal fluid when both fluids were tested simultaneously.

Of other thirty-five mental cases of diverse types chosen at random, in which no history of syphilis was obtainable, 16 *per cent.* gave a positive reaction. This is a most significant result when one considers that these cases did not clinically fall into the category of syphilitic or parasyphilitic psychoses.

TABLE I.—*Doses of Complement Required to Cause Just Complete Lysis with—*

	0.6 c.c. lecithin emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. lecithin-cholesterin emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. crude extract emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. lecithin emulsion alone.	0.6 c.c. lecithin-cholesterin emulsion alone.	0.6 c.c. crude extract emulsion alone.	.05 c.c. serum (57° C.) + 0.6 c.c. salt solution.
Negative serum .	10	10	10	3	2	2	3
Positive serum .	8	24	24	3	2	2	2

These two sera were examined at the same time. The table shows that a negative serum in the presence of lecithin emulsion may absorb more complement than a positive serum under the same conditions.

TABLE II.—*Doses of Complement Required to Cause Just Complete Lysis with—*

	0.6 c.c. lecithin emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. lecithin-cholesterin emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. crude extract emulsion + .05 c.c. of serum (57° C.).	0.6 c.c. lecithin emulsion alone.	0.6 c.c. lecithin-cholesterin emulsion alone.	0.6 c.c. crude extract emulsion alone.	.05 c.c. serum (57° C.) + 0.6 c.c. salt solution.
Negative serum .	2	2	2	1	1	1	4
Positive serum .	10	26	36	1	1	1	2

These two sera were examined at the same time. The negative serum absorbed equal amounts of complement in the presence of both lecithin and lecithin-cholesterin emulsions, whereas the positive serum showed a marked increase in the amount of complement absorbed in the presence of the lecithin-cholesterin emulsion.

TABLE III.—*Doses of Complement Required to Cause Just Complete Lysis with—*

	0.6 c.c. lecithin emulsion + 0.5 c.c. of serum (57° C.).	0.6 c.c. lecithin-cholesterin emulsion + 0.5 c.c. of serum (57° C.).	0.6 c.c. crude extract emulsion + 0.5 c.c. of serum (57° C.).	0.6 c.c. lecithin emulsion alone.	0.6 c.c. lecithin-cholesterin emulsion alone.	0.6 c.c. crude extract emulsion alone.	0.5 c.c. serum (57° C.) + 0.6 c.c. salt solution.
Negative serum .	3½	3½	3½	1	1	2	3½
Positive serum .	3½	6½	7½	1	1	2	½

This table shows that the lecithin-cholesterin emulsion in the presence of a weakly positive serum gives a marked increase in the amount of complement absorbed. With the crude abstract the reaction is doubtful.

The negative serum, examined simultaneously, serves as a control.

TABLE IV.—*Amount of Complement Absorbed by Emulsions.*

No. of experiment.	Dose of complement.	0.6 c.c. of lecithin emulsion.	0.6 c.c. of lecithin-cholesterin emulsion.	0.6 c.c. of crude extract emulsion.
I	0.075 c.c.	0.1 c.c. just complete lysis	0.15 c.c. just complete lysis	0.35 c.c. marked lysis
II	0.05 "	0.25 c.c. just complete	0.25 c.c. just complete	0.35 c.c. just complete
III	0.05 "	0.15 c.c. just complete	0.1 c.c. just complete	0.25 c.c. just complete
IV	0.05 "	0.2 c.c. just complete	0.25 c.c. just complete	0.3 c.c. trace of lysis
V	0.05 "	0.15 c.c. just complete	0.15 c.c. just complete	0.35 c.c. trace of lysis
VI	0.06 "	0.15 c.c. just complete	0.175 c.c. just complete	0.3 c.c. distinct lysis

In Table V a negative serum appears positive in the presence of an emulsion of crude extract because of the marked anti-complementary effect of that reagent. The lecithin-cholesterin method shows its true character. A positive serum, examined at the same time, is shown for comparison.

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TABLE V.—*Amount of Complement Absorbed by—*

	0.6 c.c. lecithin emulsion + 0.05 c.c. of serum (57° C.).	0.6 c.c. lecithin-cholesterin emulsion + 0.05 c.c. of serum (57° C.).	0.6 c.c. crude extract emulsion + 0.05 c.c. of serum (57° C.).	0.6 c.c. lecithin emulsion alone.	0.6 c.c. lecithin-cholesterin emulsion alone.	0.6 c.c. crude extract emulsion alone.	0.05 c.c. serum (57° C.) + 0.6 c.c. salt solution.
Negative serum	0.04 c.c. just complete	0.04 c.c. complete +	0.085 c.c. just complete	0.015 c.c. just complete	0.0175 c.c. just complete	0.03 c.c. distinct lysis	0.0175 c.c. just complete
Positive serum	0.035 c.c. just complete	0.065 c.c. just complete	0.09 c.c. just complete	0.015 c.c. just complete	0.0175 c.c. just complete	0.03 c.c. distinct lysis	0.0175 c.c. just complete

Dose of complement = 0.006 c.c.

(1) A paper read at the Annual Meeting in Edinburgh, 1910.—(2) For fuller details see Browning, Cruickshank and McKenzie, *Journ. Path. and Bact.*, April, 1910.

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The Presence in Blood Sera of Substances which have an Activating or Inhibitory Effect on the Hæmolytic Properties of Cobra Venom. By CHARLES JAMES ROSS, B.A., M.B., Ch.B. (From the Western Asylums' Research Institute, Glasgow. Director, Dr. Ivy McKenzie.)

MEDICAL science on the experimental side has been productive of no more interesting or fruitful results than those which have appeared in connection with the study of hæmolysis. The groundwork of this subject was laid by Bordet (1) in 1900 by the discovery of the fact that an immune serum contains a thermostable substance (immune

body), which, in the presence of the original immunising agent (blood-corpuscles or bacteria), is capable of absorbing complement; that is to say, a hæmolytic or bacteriolytic serum heated to 57° C. for an hour will lose its power of lysing the homologous blood or organisms, but it will retain thermostable substances whose activity can be restored by the addition of fresh non-immune serum. The absorption or destruction of complement by the immune body (anti-body) in the presence of the original immunising agent (antigen) can be demonstrated by the subsequent addition of sensitised red blood-corpuscles, that is, red blood-corpuscles which have already been brought into contact with their specific inactivated immune serum, and only require the addition of complement to complete the hæmolytic process. To take a concrete example, the fresh serum of an animal immunised against the cholera vibrio, if brought into contact with the organisms, produces lysis; the same serum, heated at 57° C. for an hour, fails to do so; if, however, fresh normal serum be added to the heated serum, bacteriolysis occurs; and, as Muir and Browning (2) have pointed out, if sufficient quantities of immune body and organisms be used, the hæmolytic complement of the fresh serum will be absorbed. Whether or not the complement has been absorbed can be easily determined by the subsequent addition of sensitised red blood-corpuscles, which require only the complement of a fresh serum to become lysed; thus, if after the addition of the sensitised red blood-corpuscles no hæmolysis occurs, then a corresponding antigen (cholera vibrio) and anti-body must have absorbed the complement; if, on the other hand, hæmolysis has occurred, there cannot have been an association of antigen with its specific immune body. It was subsequently demonstrated by Gengou (3) that these phenomena presented themselves not only when organised elements such as blood-corpuscles and bacteria were employed, but also in the case of the higher proteids; that is to say, the blood-serum of an animal (antigen or precipitinogen), if brought into contact with its corresponding anti-serum obtained from an animal of another species, will give a precipitate at the line of junction, and this precipitate can absorb hæmolytic complement, as may be demonstrated by the absence of hæmolysis of sensitised red blood-corpuscles which have been left for one and a half hours in contact with the precipitate at 37° C. The

later investigations of Moreschi (4), Neisser and Sachs (5), and Muir and Martin (6) have proved the extreme delicacy of this method of differentiating blood sera of various kinds, and the method now occupies an important and indispensable place in departments of forensic medicine and physiological chemistry. It has further been shown by Wassermann and Bruck (7) that extracts or solutions of bacteria in organs (*e.g.*, in the spleen in typhoid fever), in the presence of the homologous immune sera, are capable of absorbing hæmolytic complement, and the recognition of this fact led Wassermann (8) to the application of the same principle in the diagnosis of syphilis, in which case he employed as antigen a solution or extract of the liver of a congenital syphilitic. Although it has been fully demonstrated by Marie and Levaditi (9), Sachs and Altmann (10), Browning and MacKenzie (11) and others that the syphilitic reaction is not an antigen-anti-body reaction in the strict sense of the term, the value of the test in the diagnosis of syphilis is beyond dispute, and it is now regarded by experienced observers as the most definite and reliable serum test employed in clinical medicine. Another branch of the subject of hæmolysis is that which deals with the action of cobra venom on red blood-corpuscles, and it is this aspect of the subject with which the present investigation deals. Flexner and Noguchi (12), in an elaborate examination of the hæmolytic properties of cobra venom, found that although red blood-corpuscles whose serum had been completely removed by washing with salt solution were agglutinated by the venom, they were not dissolved; if, however, serum were added to the washed blood-cells, or if unwashed blood were used, then hæmolysis occurred. From this Flexner and Noguchi concluded that the hæmolytic action of the snake venom is due to two factors; one of the components is contained in the snake venom itself, and is said to be capable of enduring an exposure to heat at about 90° C.; the other factor is a component of the serum, and this is believed to activate the poison, which by itself is incapable of producing hæmolysis. The conclusion to which these workers came was, in effect, that cobra venom is made up of a number of substances, acting after the manner of immune bodies which are activated by certain complements of the serum. This important discovery stimulated further interest in the mode of action of cobra venom,

and Kyes (13), working in Ehrlich's laboratory, was able to demonstrate further the similarity which exists between hæmolysis by immune serum and snake poison respectively. He also showed that there are two kinds of blood-cells so far as their behaviour in the presence of snake poison is concerned :

(1) Those which are dissolved by cobra venom alone.

(2) Those that become dissolved only after the addition of other substances (complements, etc.).

These two groups were found to be comprised as follows : The blood-cells of the guinea-pig, dog, rabbit, man, and horse are dissolved by cobra venom alone, while those of the ox, sheep and goat require the addition of serum or other activating substances. Again, the blood-cells of the first group do not all possess the same vulnerability, but manifest considerable variations depending on the species to which they belong, and, in addition, different specimens of blood from the same species vary in susceptibility to the action of the venom. With regard to such blood-cells as require in addition to the venom sera or other substances to complete the hæmolytic process, Kyes points out that the sera which act as activators are of two kinds :

(1) Certain sera lose their activating power when heated to 57° C. and thus behave like true complements ; such phenomena present themselves in the following combinations :

Horse blood	Ox serum.
Ox blood	Guinea-pig serum.
Sheep blood	Guinea-pig serum.
Rabbit blood	Guinea-pig serum.

(2) Other sera preserve their activating power when heated to 60° C., and in some cases the activating power is enhanced by heating to 65° C., while in other cases the activating power manifests itself only when the serum is heated to 65° C. or 70° C. Such reactions are present in the following combinations :

Ox blood	Human serum.
Ox blood	Ox serum.

Pursuing his investigations further, Kyes showed that the thermostable activating substances in sera and in animal tissues generally pass over into alcohol and ether, and that in a mixture of serum and alcohol the activating substances are in solution while the precipitate contains inhibitory substances.

It was thus concluded that the thermostable activators are of the nature of phosphatides, and it was found that pure lecithin acted as an activator in very attenuated dilutions.

Investigation of the red blood-cells, which lyse in the presence of cobra venom alone (guinea-pig, man, etc.), led Kyes to the conclusion that in such cases hæmolysis occurs through the presence of activators in the cells themselves, and these activators he designates as endo-complements. Further chemical examination tended to show that in such cases a "disponible lecithin" might be present, which, in the presence of cobra venom, completes the hæmolytic process.

Reference has already been made to the fact that in forensic medicine, clinical medicine, and physiological chemistry the reactions in a hæmolytic system have been applied with far-reaching results. Much and Holzmann (14) have recently published an article in which they suggest the possibility of a successful application of the cobra venom hæmolytic reactions in the department of psychological medicine. That a definite chemical reaction might be present in such cases is to be expected, inasmuch as numerous observers, and among them Kraepelin, have contended for years that mental disease is not a functional disturbance pure and simple, but the manifestation of abnormal metabolic changes which may have their seat in various parts of the body; and the fact that such a reaction is said to be present in a type or types of mental diseases, *viz.*, dementia præcox and circular insanity, where up till now no evidence of organic change has been discovered, makes an examination of the conclusions of these observers all the more interesting and imperative. The reaction described by Much and Holzmann is based on the fact that cobra venom is capable by itself of lysing human red blood-corpuscles; the addition of serum from patients suffering from dementia præcox or circular insanity, or epilepsy associated with circular insanity, prevents the occurrence of lysis, while sera from other sources have no such effect. In carrying out the experiments to be described, the technique detailed by Much was followed with slight modifications. In Much's experiments 0.35 c.c. serum was mixed with 0.25 c.c. solution of cobra venom (1 : 5,000), and to this was added 0.5 c.c. washed, human red blood-corpuscles, 10 *per cent.*; this was allowed to stand two hours at 37° C. and was then placed overnight on ice, the results being then taken.

Inhibition of hæmolysis constitutes a positive reaction ; complete hæmolysis or marked hæmolysis is taken as negative. He summarises his results as follows : In the mental diseases, designated by Kraepelin dementia præcox and manic-depressive insanity, substances are present in the blood which cannot be demonstrated in the blood from other nervous cases or in normal blood. These substances are present in very small amount, and are demonstrable only by means of a biological reaction. It is not yet clear whether they belong to the cholesterin group. It is not possible by means of the reaction to distinguish between dementia præcox and manic-depressive insanity ; on the other hand, these two conditions are, by means of the reaction, sharply marked off from such apparently allied conditions as neurasthenia, hysteria, imbecility, idiocy, senile dementia, and general paralysis. The reaction is present in the blood of individuals who at the time show no evidence of manic-depressive insanity, but who belong to families with a predisposition to mental disease. The reaction is absent where cerebro-spinal fluid is used instead of blood-serum. When the cases are selected strictly according to the clinical classification of Kraepelin, 100 *per cent.* of those suffering from dementia præcox and manic-depressive insanity give a positive reaction.

In the experiments carried out with a view to examining these conclusions the following procedure was adopted : Human red blood-corpuscles were washed free of serum by centrifugalising three times with normal saline solution (0.85 *per cent.* NaCl), and a standard 5 *per cent.* suspension of the corpuscles was obtained by making 3.2 c.c. of the washed sediment up to 100 c.c. with normal saline. The cobra venom solution was made in the proportion of 1 mg. to 1 c.c. normal saline (1 : 1000). On an average it was found that from 0.02 c.c. to 0.04 c.c. of this solution sufficed to lyse 1 c.c. of a 5 *per cent.* suspension of human corpuscles. Tubes were put up with graduated amounts of human serum, and to each tube 0.04 c.c. of cobra venom solution was added, and to this was added 1 c.c. of a 5 *per cent.* suspension of corpuscles ; the tubes were placed at 37° C. for two hours and were then kept in an ice-chest overnight, the results being read next morning. With each series the dose of cobra venom was estimated for the corpuscles used (Table I).

TABLE I.

Cobra venom 1 : 1000.	Human serum.	Human corpuscles 5 per cent.	Hæmolysis.
0.04 c.c.	0.2 c.c.	1 c.c.	Trace.
0.04 c.c.	0.3 c.c.	1 c.c.	o
0.04 c.c.	0.4 c.c.	1 c.c.	Trace.

Human corpuscles 5 per cent.	1 c.c.	1 c.c.	1 c.c.	1 c.c.	1 c.c.
Cobra venom 1 : 1,000	0.01	0.02	0.03	0.04	0.05
Result ¹	o	t	c	c	c

¹ In the various tables the extent of the hæmolysis is represented thus: o = no lysis; ft = faint trace; t = trace; m = marked; ac = almost complete; c = complete.

This example shows a positive reaction, the human serum having inhibited the hæmolytic action of 0.04 c.c. of cobra venom (1 : 1,000), where the actual hæmolytic dose of the venom was 0.03 c.c.

It is obvious that the hæmolytic dose of venom for the test-corpuscles is an all-important factor in the experiment. In accordance with the observation of Much, it was found that a considerable variation existed in the sensitiveness of different corpuscles, and it was thus necessary to employ corpuscles in which lysis took place with an amount of venom just under the amount used in the experiments.

If the test-corpuscles were particularly sensitive, then in the experiments all the tubes might show lysis even when some of the sera possessed inhibitory properties. The following table gives an indication of the difficulty encountered in such a condition. Eight sera were examined with the blood of four of the specimens from which the sera were obtained.

TABLE II.

Test Blood-corpuscles. Cobra Venom 1 : 1,000.

	0.01 c.c.	0.02 c.c.	0.03 c.c.	0.04 c.c.	0.05 c.c.
24 . .	ac	c	c	c	c
25 . .	o	o	o	o	c
26 . .	o	o	o	c	c
27 . .	o	o	ac	c	c

Here it is seen that the vulnerability of the different corpuscles presents considerable variation. The corpuscles from

Case 24 are almost completely lysed by 0.01 c.c. of the venom solution, while those from Case 25 require five times that amount to produce lysis. In Cases 26 and 27 lysis is complete with 0.04 c.c. of the venom solution. These four sets of corpuscles were next employed in testing the inhibitory properties of eight different sera, with the following results :

TABLE III.

*Test Corpuscles from Case 24 + Venom (1 : 1,000) 0.04 c.c.
+ Sera.*

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 24 .	c	ac	ac
" 25 .	c	c	c
" 26 .	c	c	c
" 27 .	c	c	c
" 28 .	ac	ac	ac
" 29 .	c	c	c
" 30 .	c	c	c
" 31 .	c	c	c

*Test Corpuscles from Case 25 + Venom (1 : 1,000) 0.04 c.c.
+ Sera.*

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 24 .	t	o	o
" 25 .	c	c	c
" 26 .	t	o	t
" 27 .	c	c	m
" 28 .	o	o	o
" 29 .	t	o	o
" 30 .	c	ac	ac
" 31 .	c	ac	ac

*Test Corpuscles from Case 26 + Venom (1 : 1,000) 0.04 c.c.
+ Sera.*

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 24 .	t	t	t
" 25 .	c	c	c
" 26 .	t	t	t
" 27 .	c	c	c
" 28 .	t	o	t
" 29 .	t	t	t
" 30 .	c	c	c
" 31 .	c	c	c

*Test Corpuscles from Case 27 + Venom (1 : 1,000) 0.04 c.c.
+ Sera.*

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 24 .	t	o	t
„ 25 .	c	c	c
„ 26 .	m	t	t
„ 27 .	c	c	c
„ 28 .	t	o	o
„ 29 .	t	o	t
„ 30 .	c	c	c
„ 31 .	m	c	c

The experiments show that the corpuscles from Case 24, which are most vulnerable to the action of the venom, fail, when the usual amount of venom solution (0.04 c.c. of 1 : 1,000) is employed, to show the inhibiting action of the various sera. On the other hand the corpuscles whose lytic dose is 0.04 or 0.05 show a distinct difference in the various sera ; sera 24, 26, 28 and 29 possess distinct inhibitory properties, while sera 25, 27, 30 and 31 do not.

On the other hand, blood-corpuscles were found which showed no trace of lysis with 0.05 c.c. of the venom solution, but these same corpuscles were completely lysed with 0.04 c.c. of venom solution in the presence of 0.2 c.c., 0.3 c.c., and 0.4 c.c. of various sera, some of which exhibited marked inhibitory action when tested with corpuscles which lysed in the presence of 0.03 c.c. venom solution alone. Table IV gives the result of an experiment showing this apparently anomalous phenomenon.

The following table shows that the corpuscles from Case 46 were quite unsuitable for elucidating any difference in the sera as regards their inhibitory properties, that in fact the corpuscles behave not like human corpuscles but like ox corpuscles, in that they became lysed only on the addition of sera. On the other hand, the corpuscles from Case 47 showed a variation in the properties of these same sera. The lytic dose of the venom was 0.03 c.c., and to each tube 0.04 c.c. was added. When the various sera were added it was seen that Nos. 42, 45, 46 and 48 possessed distinct inhibitory properties, while the others showed no inhibition. It is thus clear that in the matter of technique care must be taken to accept conclusions only in

TABLE IV.

5 per cent. Solution of Corpuscles (Case 46) + Cobra Venom
(1 : 1,000) 0.04 c.c. + Sera.

(With Venom Solution alone, 0.05 c.c. showed no Lysis.)

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 41 .	. c	. c	. c
" 42 .	. c	. c	. c
" 43 .	. c	. c	. c
" 44 .	. c	. c	. c
" 45 .	. c	. c	. c
" 46 .	. c	. c	. c
" 47 .	. c	. c	. c
" 48 .	. c	. c	. c
" 49 .	. c	. c	. c
" 50 .	. c	. c	. c

5 per cent. Solution of Corpuscles (Case 47) + Cobra Venom
(1 : 1,000) 0.04 c.c. + Sera.

(With Venom Solution alone 0.03 c.c. showed Complete Lysis.)

	0.2 c.c.	0.3 c.c.	0.4 c.c.
Serum 41 .	. c	. c	. c
" 42 .	. t	. o	. o
" 43 .	. m	. c	. c
" 44 .	. c	. c	. c
" 45 .	. t	. t	. t
" 46 .	. t	. o	. o
" 47 .	. c	. ac	. ac
" 48 .	. t	. t	. o
" 49 .	. t	. m	. m
" 50 .	. c	. c	. c

cases where such corpuscles are employed as show differences in the properties of the sera in the presence of the standard amount of cobra venom solution. When the precautions referred to have been taken, an examination of human sera from various sources shows the presence of inhibitory properties in a certain proportion. The sera from 100 cases were

examined, and of these 80 were from cases of mental disease, while of the remaining 20, 3 were normal. Table V gives the result of the experiments.

TABLE V.

(A) *Nervous Cases.*

	Cases.	Positive.	Negative.	Doubtful.
Dementia præcox	20	12	6	2
Manic-depressive insanity	10	4	4	2
General paralysis	20	9	7	4
Epilepsy	15	6	7	2
Idiocy and imbecility	15	6	8	1

(B) *Cases without Nervous Symptoms.*

	Cases.	Positive.	Negative.	Doubtful.
Pneumonia	4	1	2	1
Scarlet fever	6	2	3	1
Enteric fever	4	1	3	—
Phthisis	3	2	1	—
Normal	3	1	1	1

When one reviews generally the results of the investigation it is obvious that, for diagnostic purposes, the test does not answer the claim which has been made for it by Much. The cases were classified according to the system adopted by Kraepelin, and now generally accepted, and there can be little doubt but that a positive reaction does not appear in all cases of dementia præcox and manic-depressive insanity, and it is also equally true that the reaction is present in cases which do not present symptoms of mental disease. Much asserts, however, that its presence may be proved also in cases which at the time show no signs of mental disease, but which have a hereditary predisposition in that direction. The evidence obtainable in the cases examined does not admit of a confirmation or refutation of this conclusion, but apart from that, the occurrence of a positive reaction in so many cases, not suffering from nervous disease, renders the reaction quite useless as a means of confirming a clinical diagnosis. It might, on the other hand, be argued from the above results that the reaction is more frequent in nervous cases, but the number of sera examined is too small to admit of such a generalisation.

Although the reaction did not seem to have any clinical significance, the phenomena were interesting and merited further investigation. A series of experiments were performed with a view to determining whether the presence or absence of inhibitory properties bore any relation to the capacity which the various sera possessed in activating the hæmolytic power of cobra venom for ox corpuscles. Six sera were chosen, four of which possessed distinct inhibitory properties, and two of which did not. Ox red blood-corpuscles were sensitised by added cobra venom in the proportion of 1 c.c. of a 1 : 1,000 solution of venom to 10 c.c. of a 5 *per cent.* suspension of ox corpuscles, and Table VI shows the result of the experiment.

TABLE VI.

Ox Corpuscles 5 per cent. + Cobra Venom ($\frac{1}{10}$ mg. : 1 c.c. Corpuscles) + Sera.

				Sera.				
				0.5 c.c.	0.3 c.c.	0.2 c.c.	0.1 c.c.	0.05 c.c.
Serum	51	Much positive		o	.	o	.	o
"	53	" "		o	.	o	.	o
"	54	" "		o	.	o	.	o
"	60	" "		o	.	o	.	o
"	52	Much negative		c	.	c	.	ac
"	56	" "		c	.	c	.	m

It is thus seen that those sera which possess a strong activating power for the action of cobra venom on ox corpuscles do not give evidence of having an inhibitory effect on the action of cobra venom on human corpuscles; while those sera which have an inhibitory influence on the lytic action of venom on human corpuscles have no activating power for the venom action on ox corpuscles even in considerable doses.

It was pointed out by Kyes that lecithin has an activating effect on cobra venom for ox corpuscles, and it was further shown by Kyes and Sachs (15) that cholesterolin has an inhibitory influence on the activating property of lecithin. The results obtained by experiments with lecithin and cholesterolin have led some observers to the conclusion that blood-sera possess activating and inhibitory properties in virtue of their content in lecithin and cholesterolin respectively. In view of this contention experiments were carried out to determine

whether the inhibitory properties of the human sera prevented the activation of cobra venom by lecithin with ox corpuscles. Table VII shows the result of such an experiment.

TABLE VII.

Lecithin (1·7 per cent. solution), 1:5.	Serum (51), 0·3 c.c.	Ox corpuscles + C.V., added immediately.	Ox corpuscles + C.V., added after 1½ hours at 37° C.
0·005	—	0	0
0·01	—	Trace	Trace.
0·02	—	Almost complete	Almost complete.
0·03	—	Complete	Complete.
0·05	—	"	"
0·075	—	"	"
0·1	—	"	"

The activating dose of the lecithin for the sensitised ox corpuscles in the absence of serum was 0·03 c.c. of the solution used; and the serum (No. 51) in an amount of 0·3 c.c. was capable of inhibiting the action of a lytic dose of cobra venom solution on human corpuscles. It is thus probable, at least, that the inhibiting property of the serum is not due to the presence of cholesterol. On the other hand, it was considered possible that an inhibiting serum might inactivate an activating serum although incapable of inhibiting the activating power of a lecithin solution, and this actually proved to be the case, as shown in Table VIII. For the carrying out of this experiment sera 51 and 52 were used. As seen from Table VI, serum 51 with a dose of 0·5 c.c. possessed no activating properties for cobra venom with ox corpuscles, while serum 52 produced complete lysis in the amount of 0·1 c.c. Serum 51 inhibited the lytic action of venom on human corpuscles, while serum 52 did not.

TABLE VIII.

Serum 52.	Serum 51.	Ox corpuscles + C.V.
0·2	0·1	Almost complete.
0·2	0·2	Trace.
0·2	0·3	0
0·2	0·4	0

Thus it is seen that although the inhibitory properties of serum 51 did not manifest themselves in the case of a lecithin activation (Table VII), they did inhibit the activating power of serum 52. The conclusion is thus suggested that the activating properties of a serum may not be due to its lecithin content, and the activating lecithin obtained from the serum by alcoholic extraction may be quite different from the substances in virtue of which the serum itself produces activation.

With a view to further investigation of this proposition, the properties of ox serum and guinea-pig serum were examined. Ox serum in doses up to 0.5 c.c. fails to produce venom activation for ox corpuscles, while it is capable of inhibiting the lytic action of venom on human corpuscles; in this respect it resembles such human sera as give a positive Much reaction. Guinea-pig serum, on the other hand, activates cobra venom in amounts down to 0.02 c.c., and in this respect resembles certain human sera which give a negative Much reaction. Certain characteristics of guinea-pig serum, in which it differs from human serum, will be referred to later.

It could be shown (Table IX) that ox serum is capable of inhibiting the activating properties of guinea-pig serum for cobra venom.

TABLE IX.

Guinea-pig serum.	Ox serum, 0.2 c.c.	Ox corpuscles + C.V.
0.02	—	No lysis.
0.04	—	"
0.06	—	"
0.08	—	"
0.1	—	Faint trace.

Thus, while 0.02 c.c. fresh guinea-pig serum is capable of producing lysis of 1 c.c. of a 5 *per cent.* suspension of ox corpuscles to which 0.1 c.c. of a 1:1,000 solution of cobra venom has been added, 0.2 c.c. of ox serum is able to inhibit the activating power of 0.1 c.c. of fresh guinea-pig serum for the same sensitised suspension. It has already been pointed out by Kyes and Sachs that cholesterin does not inhibit the activating power of fresh guinea-pig serum, although it inhibits the action of lecithin; this is in accord with the suggestion indicated above that the inhibiting substance in serum is

probably not cholesterin, and if the inhibiting substance be not cholesterin there are no experimental grounds for the belief that the activating substance is lecithin. It has, however, been contended by Noguchi, Calmette, Kyes and Sachs that in the case of fresh guinea-pig serum the activation occurs as a result of the presence of hæmolytic complement; in other words, this is regarded as a case of true complementing, just as lysis is produced by fresh guinea-pig serum when brought into contact with ox corpuscles which have been sensitised with the homologous immune body of the rabbit. This contention has been supported by the fact that guinea-pig serum loses its activating power when heated for an hour at 57° C., and also that cholesterin does not inhibit the activating power of fresh guinea-pig serum for cobra venom. These facts suggested a further examination of guinea-pig serum with reference to the variations which it exhibits in its activating power when heated to different temperatures. In the first place, the inhibitory influence of ox serum on the activation by fresh guinea-pig serum was tested, both in the case of corpuscles sensitised with cobra venom and also with corpuscles sensitised with homologous immune body. The result of such an experiment is shown in Table X.

TABLE X.

Fresh guinea-pig serum.		5 per cent. ox corpuscles + I.B. + 0.2 c.c. ox serum.		5 per cent. ox corpuscles + C.V. + 0.2 c.c. ox serum.
0.02 c.c.	.	Lysis complete	.	No lysis.
0.04 c.c.	.	"	.	"
0.08 c.c.	.	"	.	"
0.1 c.c.	.	"	.	"

Dose of fresh guinea-pig serum for ox corpuscles + homologous immune body (I.B.) = 0.01 c.c.

Dose of fresh guinea-pig serum for ox corpuscles + cobra venom (C.V.) = 0.02 c.c.

This experiment demonstrates the fact that while fresh guinea-pig serum appears in some respects to act like a true complement in the activation of cobra venom, still, in the presence of ox serum the lytic power on ox corpuscles sensitised with immune body is preserved, while its lytic power on ox corpuscles sensitised with cobra venom is lost.

It has been observed that, while guinea-pig serum loses its activating power for cobra venom when heated for an hour at 57°C ., it regains the power of activation when heated again for an hour at 65°C . Experiments were next performed with a view to testing whether guinea-pig serum, inactivated by heating, possessed inhibitory properties. It was found that, when the serum was heated for an hour at 57°C ., it no longer activated cobra venom, but it did not exercise an inhibitory influence on the activating power of fresh guinea-pig serum. On the other hand, when heated for twelve hours at 57°C ., or for one hour at 60°C ., guinea-pig serum exercises a marked inhibitory effect on the activating power of fresh guinea-pig serum. Such an experiment is shown in Table XI.

TABLE XI.

Fresh guinea-pig serum.	5 per cent. ox corpuscles + I.B. + 0.1 c.c. guinea-pig serum 1 hour at 60°C .	5 per cent. ox corpuscles C.V. + 0.1 c.c. guinea-pig serum 1 hour at 60°C .
0.02 c.c.	Lysis complete	No lysis.
0.04 c.c.	"	"
0.08 c.c.	"	"
0.1 c.c.	—	"

Dose of fresh guinea-pig serum for ox corpuscles + homologous immune body (I.B.) = 0.01 c.c.

Dose of fresh guinea-pig serum for ox corpuscles + cobra venom (C.V.) = 0.02 c.c.

This experiment confirms what was seen in Table X, that the activating power of fresh guinea-pig serum for cobra venom can be inhibited without destroying the complementing effect of the serum for corpuscles sensitised with homologous immune body. It would thus appear as if the contention put forward by Noguchi, Calmette, Kyes and Sachs, that fresh guinea-pig serum acts as a true complement in cobra venom activation, broke down under this experiment. In any case it is clear that the addition of ox serum or of guinea-pig serum heated to 60°C . renders one property inert without interfering with the other.

It has been noted that ox serum markedly inhibits the lytic action of cobra venom, and also neutralises sera which

have an activating effect on the venom. Fresh guinea-pig serum possesses strong activating properties ; heated to 57°C . it appears to be neutral, while heated for an hour at 60°C . it possesses distinct inhibitory properties ; heated further at 65°C . it regains its activating power. These properties of ox and guinea-pig serum resemble those which were noted in human sera.

In the case of human sera it was demonstrated that the activating properties of one serum could be neutralised by the inhibiting properties of another, while a serum with inhibitory properties did not affect the activating power of lecithin. In the case of the sera of the ox and guinea-pig those with inhibitory properties neutralise those with activating properties, and while cholesterin does not affect the activating power of fresh guinea-pig serum, ox serum does possess an inhibitory effect. It would thus seem as if the activating and inhibitory properties of sera were not associated with their content in lecithin and cholesterin respectively.

Conclusions.

(1) Human sera vary considerably in the possession of properties which exercise an inhibitory or activating influence on cobra venom hæmolysis.

(2) The fact that some sera inhibit and others activate cobra venom does not possess, so far, any clinical significance.

(3) A serum with inhibitory properties can neutralise the effect of a serum with activating properties, but does not neutralise the activating power of lecithin.

(4) Ox serum possesses inhibitory properties similar to those possessed by inhibitory human sera ; guinea-pig serum, while possessing strong activating powers when fresh, is strongly inhibitory when heated for an hour at 60°C .

(5) The inhibitory properties of ox serum and of guinea-pig serum heated for an hour at 60°C . can neutralise the activating effect of fresh guinea-pig serum.

(6) This neutralisation of the activating power of fresh guinea-pig serum for cobra venom does not influence its complementing action on corpuscles sensitised with homologous immune body.

(7) Although cholesterin does not neutralise the activating power of fresh guinea-pig serum, this is accomplished by the addition of ox serum or of guinea-pig serum heated for an hour at 60° C. It would thus appear as if cholesterin were not the body which exercised the inhibitory influence.

(8) There are thus good grounds for believing that sera do not activate or inhibit in virtue of a lecithin or cholesterin content; and it may be doubted whether true complementing occurs with fresh guinea-pig serum and cobra venom in the sense in which it takes place when fresh serum is brought into contact with an antigen and its homologous immune body.

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The Comparative Anatomy of the Frontal Lobe, and its Bearing upon the Pathology of Insanity.⁽¹⁾ By SYDNEY J. COLE, M.A., M.D.Oxon., Senior Assistant Medical Officer of the Wilts County Asylum, Devizes.

DR. J. S. BOLTON has shown that in dementia the seat of greatest wasting of the cerebral cortex is commonly the prefrontal region, a region which (following Flechsig) he regards as a centre of higher association, the great development of which constitutes a leading character of the brain of man. This is a region which in man is one of the latest to myelinate (thirty-fifth in order, according to Flechsig), and if the order of myelination, as a part of ontogeny, may be taken as an approximate recapitulation of the order of phylogeny, then we might infer that the prefrontal region of man is a new region, of late development, absent or poorly developed in animals lower than man. Upon this assumption the predominant wasting of this region in dementia would be readily explained in accordance with Hughlings Jackson's doctrine of evolution and dissolution—dissolution following the inverse order of evolution. For an understanding of the pathology of insanity it is obviously important to inquire how far a study of comparative anatomy, especially of the primates, lends any support to such a conception. The aim of my discourse is accordingly to present, first, a brief survey of the recent observations of Dr. K. Brodmann, of Berlin, upon the comparative histology of the frontal cortex, and then some observations of my own upon naked-eye anatomy of the brain of man and higher apes.

Comparing Bolton's definition of his prefrontal area with Brodmann's map of histological areas in man, we find that a chief portion of the prefrontal area—the portion on which most of Bolton's measurements of the depths of cell laminae were made—is constituted by Brodmann's area No. 10 ("area fronto-polaris"), an area which Brodmann finds already present in lower apes (*e.g.*, *Cercopithecus*) as part of an area which he designates No. 9 in that animal, and which occupies the greater part of the region in front of the arcuate sulcus. On the other hand, Brodmann finds in *Cercopithecus* nothing corresponding to his areas Nos. 44, 45 and 46 of man ("regio subfrontalis"); *i.e.*, *Cercopithecus* has a prefrontal region but no inferior frontal

gyrus. The part of man's frontal lobe which is essentially new is not the prefrontal region, but the inferior frontal gyrus. The latter, however, according to Flechsig, myelinates considerably earlier than the prefrontal region. We are therefore led to infer that there the order of myelination does not reproduce the order of phylogeny. It is interesting to notice that the order is falsified especially in a region (inferior frontal gyrus) the development of which is believed to be related more or less directly to the acquisition of functions pre-eminently human, *viz.*, those of speech.

It seems to me that a comparative study of naked-eye anatomy also to some extent supports Brodmann's views, particularly as to the inferior frontal gyrus. The rather wide variations in convolutional pattern in the anthropoid apes become in part more intelligible, if we may see in them an incipient development of an inferior frontal region comparable to some extent with, or foreshadowing, that of man. In lower apes, *e.g.*, *Cercopithecus*, such a region is absent; also, as we may readily understand, there is in them no inferior frontal sulcus. In anthropoids an inferior frontal sulcus of a kind is commonly present, but is inconstant, sometimes rudimentary, sometimes altogether absent. Only in the gorilla does it become a leading feature of the frontal pattern. Another sulcus which becomes well developed in anthropoids is the neighbouring sulcus fronto-orbitalis. In the gorilla this sulcus becomes exceedingly deep; the inferior frontal sulcus arches above it; in addition subsidiary sulci are often found in the neighbourhood of the upper extremity of the fronto-orbital sulcus, and its posterior lip is sometimes markedly opercular. The appearances differ considerably in different individuals, but taken together they seem to indicate that in these high anthropoids there is an increased development especially in the neighbourhood of the fronto-orbital sulcus, including a locality corresponding to that of the inferior frontal region of man.

It need not be supposed that there is any exact homology between the sulci found hereabouts in man and in anthropoids. But in order to put these considerations in a proper setting, in relation to the anatomy of other parts of the frontal lobe, I would endeavour to trace in brief outline the phylogenetic development of the fissural pattern of the lobe as a whole. In the very simple brain of the lemur, although a sulcus centralis

is hardly at all represented, the convex surface of the frontal lobe nevertheless presents one large sulcus, whose direction is sagittal. This sulcus corresponds in no way to the limits of any histological areas, and its formation depends probably upon mechanical factors of the simplest and most general nature. The anterior part of this sulcus is present also in most of the lower apes as the sulcus rectus; but its posterior part dwindles, in association with the development of a long sulcus centralis, and more especially of a sulcus arcuatus. Both these latter are intimately related to the differentiation of histological areas; the sulcus centralis marks the posterior limit of the Betz-cell area, and the sulcus arcuatus is related to the differentiation of zones of cortex in front of the Betz-cell area.

In anthropoids the sulcus rectus is sometimes clearly recognisable, its position corresponding to that of the anterior part of the sulcus frontalis medius and inner part of the sulcus fronto-marginalis of man; but often it is obscured, lost in the increased complexity of the pattern. However, those mechanical factors which gave rise to the frontal sulcus of the lemur, and to the sulcus rectus of lower apes, are, perhaps, still to be seen at work in anthropoids and in man, whenever we meet with well-defined sagittal frontal sulci (superior and inferior frontal).

As regards sulci related to differentiation of histological zones, I would point out that the sulcus arcuatus is represented in anthropoids and man, not only in its lower part by the inferior precentral sulcus as is generally agreed, but often also in its upper part; for we often find one, or even two, sulci curving forwards in arcuate fashion, following roughly the lines of Brodmann's areas, particularly Nos. 8 and 9 (in man). Into the composition of such an arcuate sulcus a part of the superior frontal sulcus sometimes, but not always, enters. Why, in some anthropoids, and in some men, the upper part of the arcuate sulcus is well formed, while in others it is not to be found, is a question which remains unanswered. Judging from Kohlbrugge's drawings of Javan and other Malay brains, it would appear to be of commoner occurrence in those peoples than it is, in my experience, in the insane of the county of Wilts. It appears to be commoner also in the Chinese. When occurring in the insane of Wilts it does not appear to signify inferiority.

It is important to observe that the upper part of such an arcuate sulcus runs forwards into Flechsig's anterior centre of association; it invades the hinder part of Bolton's prefrontal area. Thus a comparative study of fissural pattern suggests that the development in man's prefrontal region has proceeded mainly upon lines already laid down in lower apes; such a study reveals as yet nothing to show that the prefrontal region is new, in the sense in which the inferior frontal region is new. This is not to say that the functions of the prefrontal area may not be those which Dr. Bolton has claimed for it; only that the distribution of cortical wasting in dementia, and of those finer pathological changes of which that wasting is the last and most striking expression, can hardly be explained upon Jacksonian principles without some reservation.

(¹) A paper read at the Autumn Meeting of the South-Western Division, held at Bristol on October 28th, 1910.

Heredity and Insanity.(¹) By T. E. K. STANSFIELD, M.B.,
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THE subject of heredity in relation to the mental evolution of the race and to mental disease is of such supreme importance that I plead no excuse for making it the subject of my paper. It is a subject which has not in the past received that amount of attention from us as alienists which its momentousness demands. But the work of Galton, the revived monumental experiments of Mendel, and the investigations of the school of biometricians, headed by Karl Pearson, have latterly given a great impetus to this line of study.

There is one section of the Commissioners' annual Blue-book which is always a source of great interest to me, and no doubt it is to most of you; I refer to the graphic charts showing the growth of insanity and the ratio of recognised private and pauper insanity to the population. As you are aware, the curve for private patients reached its highest point in 1879, when the ratio of recognised private insanity was 2.97 per 10,000 of the population; then it fell steadily for twenty years, so that in 1899 it was 2.73 per 10,000; since

then it has risen again and is now 2.93, but the rise is to a great extent accounted for by a new factor which came into operation about 1899; I mean the transferring of pauper patients to the private list, where it is found that either they have sufficient means to pay the ordinary maintenance rate or they have friends who undertake to pay it for them. If this system had not come into operation all these patients would have remained in the pauper class.

As we have in London alone 468 such transferred cases—representing two-thirds of the rise—who would previous to 1899 have remained on the pauper list, I think one is justified in saying that there has been no true rise in the ratio of private lunacy, but, on the other hand, there has been a steady fall.

If we turn to the pauper curve we find that it has mounted upward at an acute angle, showing an enormous rise in the same period from 20 per 10,000 to 32.87; in other words, it has increased 64.35 *per cent.* in the same period of thirty years. *A priori* one would have expected a rise in the private class commensurate with that of the pauper, and the ratio would then have been 4.85.

The various mental factors which are commonly supposed to operate in favouring the growth of mental instability and insanity, and which we group together under the generic term “mental stress,” have probably increased as much in that section of the community from which private patients are derived as in the class which fills our pauper asylums. The race of life is run at an ever-increasing speed; it does not matter whether it is the strenuous existence of the society lady in her hunt for pleasure, her search for new sensations, and her luxuriousness, or in the race for wealth in the city man, with the noise, bustle, rapid locomotion, and the infinite number of other causes, all tending to increase mental strain and nervous exhaustion. Why, therefore, have we not reaped a crop of insanity commensurate with the seed which has been sown? Instead of yielding an increased crop the land has become more barren. On the other hand, the environment of the poorer classes has been enormously improved during the period under review, and one would be justified in expecting a corresponding decrease in insanity. But instead of a decrease we have an enormous increase.

Another important factor, the growing wealth of the

community, ought to have come into operation in swelling the ratio of the private at the expense of the pauper ; but there is no indication that such is the case, unless, perhaps, some of the transferred cases I have mentioned might come under this category. I do not remember having seen or heard any attempt at an explanation of this disproportionate growth in the two ratios, but perhaps some of you may be able to enlighten me. I have often pondered over the problem, and have invariably arrived at the same conclusion, namely, that it is due to the growing appreciation of the important part played by heredity in the causation of insanity by that section of the community which sends us our private patients, and the ignoring of the fact by the class which supplies the large bulk of our pauper insane.

The point I wish to emphasise to-day is that, in my opinion, the increase in insanity is not general throughout the community ; that there are no indications of such an increase in the upper, middle, and intelligent working classes, but that, as I stated in my annual report some years ago, we have a mass of degeneracy in the lower ranks of the population which is increasing out of all proportion to the remainder of the population.

Feeble-mindedness, the tree upon which the bulk of the insanities is grafted, appears in all ranks of life, probably as frequently among the well-nourished and well-to-do as among the poorly nourished and over-crowded, being probably a reversion of type, a case of atavism, a relapse to a primitive condition of cerebral activity, as Sir Ray Lankester pointed out ; but when it appears in the upper classes it is specially cared for and protected, and the proportion of these that marry and reproduce themselves is small indeed. Thus to a great extent they die out, whilst in the poorer classes they tend to gravitate to the lowest ranks, where they mate with their kind without let or hindrance, and reproduce a further crop of feeble-minded.

There have been in the past, to my mind, two influences which have largely operated in restricting the growth of knowledge of human heredity, one being that of the Church, which preached that propagation was the Divine command ; that nothing should be placed in the way of any man reproducing his species ; that man was formed by his environment.

But it is gratifying to find that at last the Church has begun to appreciate the importance of this question with its bearing on the future of the race. The Bishop of Ripon, in his very able paper delivered before the Church Congress, in September, 1910, spoke in no uncertain terms. As reported in the *Times*, he urged that they ought to discourage marriage "among the unfit; the diseased, the feeble-minded, the alcoholic, the tuberculous, ought not to marry. Some of these should be urged by motives of patriotism to lead single lives. Others, like the vagrant, the tramp, the hooligan, should be put under restraint."

The other influence to which I refer is that of the Socialists, who insist upon the equality of all men, maintaining that man is purely the creation of his own environment; that the child of the slums, if given the same opportunities as the son of wealth, position and ability, would develop equally the same mental and physical characters. In other words, that Jack is in every way as good as his master.

It was left to Sir Francis Galton to explode these fallacies. This he did as long ago as 1869, when he published his great work, *Hereditary Genius*, which, however, as Whitham points out in his recent work, *The Family and the Nation*, has not received adequate recognition till recent years, owing to what he terms "the prevailing individualistic philosophy of life." Galton drew attention to the fact that the results of examinations such as the old Cambridge mathematical tripos showed that instead of men being born equal, as we believed in the nineteenth century, one man had natural abilities which, measured against those of some other men with similar training and opportunities, must be reckoned to be at least as thirty to one.

I have for many years drawn attention to the gravity of these questions, and have written upon them in my reports to my Committee and others, but it is only now, as the subject is becoming one of, perhaps, national importance, that the attention of the larger body of thinkers is directed to it. I feel that you are in agreement with me that the more the matter is ventilated the sooner will action be taken to find a remedy.

We have been using every available means at this asylum to obtain as complete a family history as possible of all the

cases under treatment, but the difficulties have been very great. Quite a large number of our patients were born in the provinces, have drifted into London for various reasons—most frequently to obtain employment—and nothing is known of their early life or family history. Very commonly one finds that the husband or wife of the patient has no knowledge of the patient prior to marriage, nor acquaintance with any of the blood relations. Even when the history is well known to their friends there is often the greatest reluctance on their part to reveal the presence of mental disease, and they will often deny its existence when they have relatives actually under treatment. A flagrant example of this occurred here recently. A patient was admitted here, and the father stated on the inquiry form sent to him that there had been no case of mental breakdown in the family, although we had at the time a sister of the patient a patient here, and we knew that a brother had been a patient at another asylum.

On the other hand, we can be perfectly sure that if there is no insanity or mental defect in the family we are not told that there is, but rather the fact of a sound heredity is emphasised.

It is, therefore, obvious that the fallacies when dealing with statistics in insane heredity are all on one side, and that any figure put forward must invariably understate the case.

A careful search of the records of this asylum since its opening has been made, with the following results :

	Number of patients admitted.	Family history of mental defect ascertained.	History of mental defect denied.	No family history obtained.	History of parental alcoholism only.
Males .	3,561	690	723	2,007	161
Females .	3,600	965	1,006	1,457	102
Total	7,161	1,655	1,729	3,464	263

If we exclude all the cases in which a family history could not be obtained, we have 3,697 cases remaining where it was obtained, and of these 44·76 *per cent.* gave definite information that one or more members of the family had suffered from mental disease or were mental defectives, and a further 7 *per cent.* had a history of alcoholism in one or both parents.

We have no less than 563 patients in residence who have one or more blood relations who either are or have been under treatment in an asylum. We have 50 instances of father and son ; 56 of father and daughter ; 34 of mother and son ; 77 of mother and daughter ; 49 of brothers ; 69 of brother and sister ; 69 of sisters. There was one instance of father, three sons and one daughter ; one of father, two sons and one daughter ; two instances of father, mother, and son ; one of father, mother, son, and daughter ; one of three brothers and two sisters ; six of father and two sons ; five of mother and two sons ; three of mother and three sons ; three of two brothers and one sister ; one of four brothers ; seven instances of three brothers. We have sixty patients where grandfathers were insane, and forty-one with grandmothers insane. One patient was recently admitted whose father and mother had both died in the insane wards at the workhouse, and three of whose daughters have been insane.

I will not weary you by giving you a list of the insane collaterals, of which we have collected a large number. The above figures are compiled from statements made by relatives, by the patients themselves, or by the relieving officers of the various parishes. We are endeavouring to verify them, and have done so in a large percentage of cases. This is a comparatively easy matter when dealing with the relatives in other London asylums, but the cases quoted include all the out-county cases. When grouped according to the numbers of known cases of insanity occurring in a family the figures are :

2 in a family	.	.	.	.	404 times
3 "	.	.	.	.	26 "
4 "	.	.	.	.	4 "
5 "	.	.	.	.	twice
6 "	.	.	.	.	once

The more persistent we are in our inquiries the bigger the list becomes.

The criterion, it must be remembered, in all cases has been certified insanity, and no attempt has been made to bring in cases of recognised insanity in the relatives as observed in the consulting room and the visiting room, or as it appears in the correspondence with the relatives of the patients—unofficially recognised insanity, with which you are no doubt familiar. The

periods at which insanity associated with heredity tends to develop in members of an insane stock are the physiological epochs of life: puberty and adolescence, childbirth, and the climacterium, and the form of insanity is frequently almost ridiculously identical. Feeble-mindedness is almost invariably the foundation upon which the insanity is built. I have been struck by the fact that quite a large number of general paralytics have a history of heredity.

In order to deal with the subject on Mendelian lines, it would be necessary to have a complete history of all the supposed normal members of each family. This might be comparatively easy in any asylum which receives its patients from sparsely populated districts, where the family history may be readily traced for three or four generations. But when dealing with cases from a densely populated area such as London, and with patients of the pauper class, seldom, if ever, can any information be obtained of even the whole of the members of the present generation.

An important fallacy to contend with in endeavouring to trace insane descent on Mendelian principles would be that insanity does not develop at any definite period in life, and therefore a potentially insane member might appear as a normal member at the moment under examination, and shortly afterwards appear in a true character. Again, an apparently normal member of an insane stock may go through life without developing insanity, because the environment may not have been such as would favour its development, yet would pass on to his or her progeny the characteristics which cause them to develop the disease possibly in early life.

It is a curious fact, however, as Bateman, in his *Mendel's Principles of Heredity*, points out, that nearly all the abnormal features (except those which are sex-limited) that have been yet positively shown to follow Mendelian rules in man are dominant to the normal, and if any inference at all can be made from the statistics so far compiled here, it must be that insanity is in general agreement with other abnormalities in its mode of descent, and is usually dominant to the normal, *i.e.*, it usually descends directly from parent to offspring.

The fact of segregation was the essential discovery which Mendel made, as is pointed out by Bateman, and to my mind this fact throws a light upon the occurrence, *de novo*, of some

forms of insanity in an apparently normal stock ; for insanity must be looked upon as a composite disease and not as due to any one individual factor. It is easily conceived, therefore, that the father and mother may each contribute factors which, assembled in the offspring, bring about the condition which we know as insanity, and which there remains as dominant in the future progeny of that branch of the stock.

The importance of environment alone, using the term in its widest sense, in the production of insanity is, in my opinion, much over-stated, though I fully agree that it may furnish a suitable nidus for its development and growth, for, as Sir Ray Lankester points out in his statement on heredity in relation to feeble-mindedness to the Royal Commission, severe life-conditions and insufficient food usually produce in those who survive those conditions a relatively high development of brain-power.

As I have already remarked, the vast improvement which has taken place in environment during the last century has not resulted in a proportionate decrease in insanity ; on the other hand, the ratio of recognised insanity to the population has steadily increased, and it might be argued with considerable apparent truth that these improvements—increased rates of pay, reduced hours of labour, our present Poor-law system, our advances in medical and hygienic knowledge, our schools for the feeble-minded, our modern dietary, and our modern treatment of insanity—leading, as they do, to a reduction of the struggle for existence, lessened natural selection, increased ease and luxuriousness of living, the prolongation of life for members of a weak and unsound stock, and, above all, a lessened mortality among their children, tend to mental degeneracy of the race. In other words, our present load of insanity is the penalty for our western civilisation.

The question at once arises—How are we as a nation to overcome the evil and stem the flow of this rising tide ? I think the answer is, Prevent the propagation of the feeble-minded and of the recurrent insane. The recommendation of the Commission on the Feeble-minded to form colonies where the feeble-minded should be compulsorily detained is a very excellent idea in theory, but I am firmly convinced it would prove a failure if put into practice. They would be rate-supported and therefore would have to be under the control of

lay representatives of the ratepayers, who would be called upon to adjudicate as to the fitness for detention or discharge of each individual.

You all know how difficult it is at the present time to satisfy a committee of laymen as to the necessity for the detention of the feeble-minded hooligan or erotic imbecile after they have been converted into quiet, industrious members of an asylum community by treatment and the influence of an environment in which they have not the opportunities of exhibiting their peculiar propensities, especially when the friends are persistent in their demands for the patient's discharge.

Yet how much more difficult would it be in a case of pure feeble-mindedness, where there has been no grave moral or social breach prior to admission, and where the industry of the patient would be of the utmost value in assisting to maintain possibly old and decrepit parents. The cost to the nation would be enormous.

I very much doubt whether it would be possible to manage a colony of feeble-minded where there is no prospect of their ultimately recovering their freedom. The hope of release is constantly with the patients, even in an institution of this kind, and I believe it is that hope alone which enables us to give them a reasonable amount of freedom and to induce them to occupy themselves. Without it such an institution must become at once a prison and not a hospital—a prison without hope.

To my mind there is but one remedy, and that is sterilisation.

(¹) A paper read before the Autumn Meeting of the South-Eastern Division, held at Bexley Asylum on October 5th, 1910.

The Sterilisation of the Insane. (¹) By E. FAULKS, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, Bexley Asylum.

GENTLEMEN,—The subject which I purpose bringing up for discussion to-day appears to be one which is well suited to debate by such a meeting as this. The various proposals are comparatively new in literature, and more so in open debate by learned societies. It is a matter which you, as mental experts, are eminently fitted to give valuable opinions

upon, few other associations having any knowledge of, or interest in, the conditions of mental life and growth which are alone responsible for the origination of these proposals.

In addition to this, it is a matter concerning which public discussion can hardly, as yet, be undertaken with advantage, the propositions being of an essentially intimate character, and opposed to many of the inherent prejudices of modern times.

Furthermore, it is a matter with so great potentialities for misconstruction, wilful as well as conscientious, that it is extremely undesirable that the subject should be publicly broached unless and until it has a definite backing of authoritative medical opinion. It is, however, interesting to note that recently, as you are all doubtless aware, non-medical publicists have discussed the subject freely and openly, and there is, I am certain, a considerable lay opinion in favour of radical restriction of degenerate procreation.

The difficulties of the subject are many and great, chief amongst them the comparative scarcity of figures and results of experience or experiment. I may, however, remind you that Dr. Sharp, physician to the Indiana reformatory, has been performing the operation of vasectomy for the past eleven years, and has completed successfully several hundreds of operations. In 1908 he stated his experience in the following words:

"I have been doing this operation for nine full years. I have 236 cases that have afforded splendid opportunity for post-operative observation and I have never seen any unfavourable symptoms; there is no disturbed mental or nervous condition following, but on the contrary the patient becomes of a more sunny disposition, brighter of intellect, and ceases excessive masturbation; and the operation is endorsed by the subjected persons. I have operated on three physicians, and they have all assured me that they felt a lessening of muscular and nervous fatigue."

The immaturity of the subject, however, appeared to me to be one of its principal attractions as a subject for debate. Of the making of blood-counts there is no end, and the classifications of insanity have a tendency towards the weariness of the flesh. There is in the subject at any rate less scope for tedium than rancour, and I am anxious to place myself at your service.

Of the importance of the proposals that have been put forward for the sterilisation of the insane there can be little doubt. Any proposition which has for its object the attempted reduction of the growing masses of the certified insane, of the idiot and imbecile class, of the reformatory and charity school type of degenerate, of the chronic criminal, of the sexual pervert and public prostitute, and of the habitual feeble-minded pauper, demands, and should, by reason of its urgency, receive the careful and just consideration of the members of this Society.

I do not bring forward masses of statistics showing the numbers of the insane and degenerate persons in the land, the enormous expense of their upkeep, and so forth; nor shall I discuss the subject of the effect of heredity in insanity. I take it for granted that we all agree that it has an enormous influence in the production of insanity even if we do not agree as to the exact extent of its effects.

The nation has a right to demand of us, as alienists, that we should make some serious attempt to minimise the apparently perpetual increase in mental deficiency. We are not behind any branch of our profession in the advances we have made in the care and treatment of our particular charges, but when we compare what I may call our mental public health work with that accomplished by our brethren in the profession, it appears to me that we are sadly behind, having largely left this part of our work to educational authorities and social reformers. We have to face the fact that we are annually turning out of our asylums a number of recovered, partially recovered, or unimproved patients corresponding to from roughly 25 *per cent.* to 50 *per cent.* of our several admission-rates; of these about 58 *per cent.* are women, about 75 *per cent.* of whom are at the child-bearing age, and 42 *per cent.* men, nearly all (90 *per cent.*) of whom are at reproductive age. In our pauper asylums the large majority of these people are of the poorest class, mostly improvident, poorly educated, absolutely ignorant of the malignant powers they possess, and abominably careless as to what their intercourse may lead to, what their progeny may be, what degree of mental or physical impotence their children may inherit, how these shall live, who will have to support them, or what poverty-stricken, unhealthy, immoral or secluded lives they may have to lead.

Married patients, when discharged, are advised to refrain from sexual intercourse; some of our bolder counsellors advise Malthusian methods; in a few cases, doubtless, the self-denying counsel will be adopted for a time, but it is not even to be hoped, much less expected, that these people will not succumb to their desires sooner or later. Amongst the middle-class, where sexual restraint is probably the most commonly practised, we may perhaps hope that a campaign of education might at any rate tend towards the end we have in view, but in the poorer class we may never, I am convinced, expect it. I verily believe that the consequences are either unknown, misunderstood, or treated in the cavalier manner of one of our noble statesmen. Figures which might show the number of children borne by women discharged from asylums would be very interesting and instructive reading. Unfortunately, as far as I know, they are, and always will be, impossible of collection, and even if they were obtained they would probably tell less than half the tale. The male lunatic would still have his progeny unaccounted for and unrecognised, and he is obviously a greater power in the production of offspring, good or bad, than the female.

The predominant and almost agonising fact is here—that lack of control and lack of the sense of responsibility are the ever-present afflictions of the feeble-minded, whether immured or liberated.

We cannot give them these powers; advice is of no avail; laws are unfortunately more impotent than the lawless. The question is: What is to be done to prevent the wholesale reproduction of embodied insanity?

In addition to the all-important object of this movement, there are several advantages to be gained beyond ensuring the security of the patient and of the State from harmful reproduction.

It is not by any means infrequent for us to hesitate to recommend the discharges of young married women and married men in whom we have definite history of strong sexual tendencies, but who otherwise may be considered fit to resume their work in the home, or in the world at large, under sufficient care or control by relatives. It is without doubt one of the most frequent difficulties arising in the minds of our superintendents and the members of our committees, when con-

sidering applications for the liberation of their patients, that, given liberty, the first enterprise these patients engage in will be the augmentation of the population. In another class of case, the puerperal and lactational insanities, it is with the deepest regret and the greatest possible delay that any sanction is given for their release. Given a satisfactory safeguard there would assuredly be a diminution in the period during which the housekeeper or the breadwinner is kept from her or his occupation, much to the relief of the overworked partner, and, I am certain, of ourselves. Surely in these types it is urgently necessary to adopt some means of helping them to earlier and safer liberty, to relieve their families of the constant stress of this single life with its double burden, the rates of no inconsiderable part of their pecuniary contributions, and the future from its certainty of acquisition of undesirables. At present such patients when at liberty are jeopardising their own mental health and incurring the risk of producing defective children when they indulge their perfectly natural physical desires. We have a means at hand by which they may be permitted to adopt a normal conduct of life, and at the same time safeguard themselves permanently from any of the dire effects which at present lie in wait for them and their progeny.

At the asylum at Wil in Switzerland, a national institution, some cases of a very interesting nature have recently been recorded, bearing on our present subject to a very marked extent: In the reports for 1907 are recorded four castrations performed on patients in the asylum on social grounds, the first cases of the kind, Näcke believes, that have ever occurred in Europe. The first case was a girl, *æt.* 25, epileptic and nymphomaniacal, who had had two epileptic and imbecile children. The nymphomaniacal tendency made necessary her retention in the asylum, though she was capable of work. She and her friends agreed to the operation, and she is now free and working, "satisfied with her condition." The second case was a woman, *æt.* 36, weak-minded, and liable to attacks of excitement and overmastering sexual desires. She was a skilful worker, but had had two children who were a charge on the community, which was on this ground opposed to her liberation. After the operation she was allowed to leave.

In both these cases there was found to be cystic degeneration of ovaries. The third case was a man, *æt.* 31, physically

vigorous, but psychically abnormal, and with morbid excess of sexual desire. He was placed in the asylum for observation on account of indecent assaults on minors. His general condition improved in the asylum, but the sexual excitement continued, and at his own urgent desire, and with the consent of his relations and the authorities, castration was performed. He has been guilty of no sexual offences since.

The last case was a sexual invert, æt. 32, of a high grade of intelligence, but with very strong sexual impulses. On account of indecent conduct with boys he was sent to the asylum as irresponsible.

For some eight years he was in and out of the asylum, always yielding, when out, to his abnormal sexual tendencies; at last he urgently demanded castration. Since the operation he has so far felt no return of his abnormal impulses.

Näcke, who has long regarded legal castration, with due precautions, as "one of the most beneficial institutions of the future," draws the moral of these cases, and points out the ease with which all concerned—patients, relatives, and the law—agreed to a step which was by no means demanded merely for the benefit of the patient, but primarily and chiefly for the benefit of society.

In cases of sexual perversion, and possibly in cases in which masturbation is the chief symptom and perhaps a contributory cause of the insanity, it would doubtless be advisable to perform castration, or better, to induce atrophy of the testicle. Cases of sexual perversion, in which that symptom alone prevents the discharge of the patient, are not by any means common, but when they do arise, surely nothing is more rational than the removal of sexual desire and reproductive power.

Many male cases in our asylums at the present time are rendered useless, and even harmful and dangerous, by the constant practice of masturbation.

The experience of Dr. Sharp in Indiana, and Dr. Schiller in Switzerland, goes to show that considerable mental improvement follows a sterilising operation in these cases, and it not infrequently happens, probably more commonly than in any other case, that the patient's friends, and even the patient himself, enquire if an operation cannot be performed to rid the patient of his terrible trait.

To arrive at this goal—the sterilisation of the unfit—several

proposals have been made, in which the spheres of action differ very widely. They can be fairly classed under four headings :

First, the compulsory sterilisation of all insane and imbecile subjects about to be discharged from our asylums and imbecile houses, or detained in workhouses, schools for feeble-minded, prisons, reformatories, and inebriate and epileptic homes.

Doubtless, to follow the question of the sterilisation of the unfit to its logical issue, this proposal, sweeping as it is, would still be insufficient. Many students and writers on eugenics supplement this by the addition of chronic criminals, common prostitutes, chronic alcoholics, and numerous cases of physical conditions known to be commonly transmitted. Practical difficulties, even if this demand were conceded, are very great in dealing with any general proposal at the present time. We, as medical officers of lunatic asylums, are chiefly concerned in our own type of case. Undoubtedly the only way in which we shall come to a correct and faithful conclusion on the subject is through the consideration of conditions and cases with which we are in daily contact. Obviously our experience is too limited to allow us to urge conscientiously the wide-spread sterilisation of all mental defectives, and it is essential that we go warily, considering with ourselves each case on its own merits. Therefore I do not support so wide a project.

The other proposals commonly advanced are as follows :

Secondly, the compulsory sterilisation of all insane, imbecile, and epileptic cases about to be discharged from lunatic and imbecile asylums.

Thirdly, the compulsory sterilisation of recurrent cases when discharged at reproductive age.

Fourthly, the compulsory sterilisation of proposed discharges who are at the moment under certificate for the second or further time.

It will be noticed that these all deal with the compulsory sterilisation of patients about to be discharged from lunatic asylums or imbecile homes. Where they differ is that in the second proposal all discharges are suggested for operation, in the third only recurrent cases, and in the fourth only those who are at the moment under certificate for the second or later time.

To consider the second proposal, it appears to me to be too

general to obtain acceptance at the present time. On the face of it, it would include all cases of delirium, post-febrile, infective and alcoholic, exhaustion psychoses, and simple gross brain lesions, due to traumatism, tumours, etc.

Although many consider that practically all people who find themselves under certificate through whatsoever cause are unstable, therefore properly liable to segregation, in our present state of uncertainty of knowledge on this point it would certainly be unadvisable to include cases of what I may call unestablished insanity. I have in my mind a typical case which explains what I mean on this point. A man suffering from pneumonia in Bristol became delirious, escaped from his house, took train to London, was found wandering in one of the London parishes, recovered physically, and was all but recovered mentally when admitted to this asylum. I should not support any proposal which would include such a case in its scope.

The next suggestion is that all recurrent cases may be sterilised with advantage to themselves and the coming race. This suggestion almost, but not quite, eludes the disadvantages of the former one; it cuts out most of the cases I have indicated. It, however, allows cases to escape which are surely, above all, those with which we should undoubtedly deal, *i.e.*, chronic insanities sent out on undertaking, or sent out, as they so frequently are, because the friends make a good application and appear to be able to care for patients, in themselves harmless, and having given no cause for alarm whilst under care and control. In other words, the feeble-minded, hence feebly controlled, patient here escapes without any attention. The mild imbecile with sexual leanings, the dement with no sense of responsibility, the alcoholic dement who may commit any excess either for drink or on account of it, the non-resistant wife going home to an ignorant and clamorous husband, are the very people who unfortunately are frequently discharged, and who set about reproducing their prototypes with easily stimulated vigour.

Dr. Stansfield, proposing in his report some years ago the sterilisation of the insane, suggested that patients should be sterilised after they had once been discharged and had returned under certificate.

This proposition has many advantages, and introduces many safeguards against needless or indefensible operation.

It would obviously limit the operation to cases of established insanity. All cases of curable physical conditions would be excluded, as well as all cases of insanity produced by any transitory cause, and in which there is no demonstrable permanent mental instability. It, however, would still exclude mild but chronic cases sent out on undertaking or discharged to friends thought capable of insuring that the patient would not be given opportunities for homicide, suicide, or serious anti-social action beyond that of reproducing his kind. It appears, however, as I stated before, that these so-called harmless chronics are often the ones we particularly wish to reach. Mental instability and ineptitude are demonstrably commonly transferred to the offspring. It is the lack of the determiner in the mental growth which most commonly leads to defective reproduction. Therefore, in my opinion, these people should most certainly be considered subjects for interference.

Hence, in shortly reviewing these propositions, the last project appears to be by far the safest, and perhaps somewhat errs on the side of caution, omitting a certain definite class which appears to be important. I have received from an eminent foreign psychiatrist a proposal in which he evidently has a great belief, *i.e.*, that persons discharged from asylums be always kept in view by some official means, and any offspring, subsequent to the discharge of the parent from an asylum, showing any sign of mental defect, be immediately submitted to operation. This proposal, although very attractive, throws a greater burden on the State than it should be asked to bear, and requires a more constant watchfulness and a more thorough system of registration than could ever be adopted, considering the vagrant nature of most pauper lunatics. It also has the objection of being a sort of ticket-of-leave system. My own opinion is that, in view of the immaturity of our knowledge and experience on the subject, we could best serve the patients of the types indicated above, the State, and the future race by making strong recommendations to the patient and the nearest relative that the patient should voluntarily submit to the operation, pointing out to them the seriousness of their powers of reproduction, and in many cases the certainty of relapse with a recurrence of the cause, and offering them the liberty of marital intercourse which we at present have frequently to

attempt, by our advice, to deny them. I believe that a few successful cases of operative interference would do more to render patients agreeable to the proposal than any amount of books and statistics. Under this proposed method it would be possible to select exactly those cases whose history, mental state, and likelihood of reproducing degenerates would be comparatively well known to us. We should be able to avoid all cases which a generalised system would induce us to include. Above all we should need no public agitation and law-passing to accomplish our end, and these formidable obstructions would not need to be grappled with until cases had been completed and collected and sound conclusions and recommendations arrived at.

Now to come to some details of the possible methods of sterilisation. The simplest, most effective, and most permanent are, in the woman salpingotomy, and in the man vasectomy. The former operation consists in making a vertical central incision in the abdominal wall for the extent of four inches, between the umbilicus and pubes, passing with MacEwen's hernia needle a ligature of sterile catgut or silk round each Fallopian tube about half an inch from its uterine end and another about half an inch external to that, tying each so as firmly to occlude the lumen of the tube and dividing the tube between the ligatures. Given ordinary care and cleanliness the operation is simplicity itself. There are no vessels or other structures of note which can be injured, and the uterus and the ovaries continue to fulfil all their functions with the one exception which we desire to obtain.

Vasectomy in the male is performed in a more simple manner still. After careful preparation of the skin, a small incision is made over the vas, the duct drawn forward with a hook, the surrounding vessels carefully and completely separated, one firm ligature applied, and the vas divided below the ligature, about half an inch being removed. The lower end of the vas being patent ensures the escape of seminal fluid amongst the vessels and lymphatics of the pampiniform plexus. This enables the organism to retain the stimulating advantages of the internal secretion of the testicle, as the organ becomes cystic if the vas is occluded.

Through these operations there is therefore no deformity, nor are there any possible serious physical defects if ordinary

care is used. Dr. Sharp has performed several hundreds of operations of this nature with uniformly gratifying results.

It is frequently suggested that sterilisation should be accomplished by means of treatment by X rays. This method is, however, expensive, uncertain, and ineffectual; it requires repeated treatment to ensure sterility, and in no case does the condition last for more than two years. Its sole advantage is the fact that it does not require anæsthetics for application.

The law.—As far as I am aware the operation cannot be legally enforced in any other country than the State of Indiana. The subject has been brought forward very urgently and all but successfully in other states, but within my knowledge the following is the only statute extant.

This has the disadvantage, as Dr. Stansfield has pointed out, that it does not provide for the possible misuse of the operation by unauthorised persons.

"An Act to Prevent Procreation of Confirmed Criminals, Idiots, Imbeciles, and Rapists."

"Approved March 9th, 1907.

"Preamble : Whereas, Heredity plays a most important part in the transmission of crime, idiocy, and imbecility,

"Therefore, be it enacted by the General Assembly of the State of Indiana, That on and after the passage of this Act, it shall be compulsory for each and every institution in the State entrusted with the care of confirmed criminals, idiots, rapists, and imbeciles to appoint upon its staff, in addition to the regular institutional physician, two skilled surgeons of recognised ability, whose duty it shall be, in conjunction with the chief physician to the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and Board of Managers. If, in the judgment of this committee of experts and the Board of Managers, procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be considered safest and most effective. But this operation shall not be performed except in cases that have been pronounced unimprovable.

"Provided, that in no case shall the consultation fee be more

than three dollars to each expert, to be paid out of the funds appropriated for the maintenance of such institution."

With regard to the question as to who should be allowed to perform this operation in order to safeguard it from misuse for criminal purposes, the only simple solution is to limit the operators to medical officers of asylums, or such as are called in by them to perform the operation. Doubtless there is a possibility of wrongful interference if the operation be carried on extensively outside without any restriction. We have to remember, however, that both operations can be, and are at present, performed for perfectly legal reasons, *e.g.*, in the female for the prevention of child-bearing, in cases of deformed pelvis, obstructing fibroids, etc., and in the male for the purpose of draining abscesses of vesiculæ and of draining testicles when vesiculæ are obstructed. As it stands at present the law considers any surgical operation without the permission of the patient or responsible guardian as an assault, but given the consent of the adult patient and the guardian, any well-founded surgical operation can be performed.

In conclusion, I may note that I have not considered any of the objections to operative interference of this nature, not because I think there are none, but because they will doubtless be fully and energetically introduced by you who have much greater experience of insanity and its prophylaxis than I can boast. I can only hope that the subject will arouse an interesting and instructive discussion, and that, I beg to submit, is one of its two chief aims.

(¹) Read before the South-Eastern Branch of the Medico-Psychological Association at Bexley Asylum, October 5th, 1910.

Periodic Attacks of Excitement and Depression in the Chronic Insane. By R. M. MARSHALL, M.D., Assistant Physician, Glasgow Royal Asylum.

CLINICAL psychiatry is at present passing through a period of transition; to this two influences have largely contributed:

(1) The adoption of the biochemical theory of the origin of disease as a working hypothesis in our speculation and investigation.

(2) The recognition by the clinician that he must study each case as a whole, and suspend judgment until he has all the facts of the alienation, onset, course and termination before him.

The facts elicited by these two lines of study have caused our most cherished clinical views to be thrown into the melting-pot, with the result, it must be confessed, of little unanimity in the teachings of those who seek to recast them. This state of chaos has, however, one compensation: it sends us into our chronic wards with quickened interest, because we must look there for a solution of many of our problems; and of no problem can this be more truly affirmed than of that of the relationship which dementia bears to the syndromes of excitement and depression. This paper deals with a small yet striking aspect of this large subject—the relationship of the alternating mental states to dementia.

Of the 247 female patients at present resident in the Glasgow Royal Asylum, there are seventeen who are liable to periodic attacks of mental excitement and depression. In general, the mental life of these patients may be regarded as exhibiting three phases:

(a) A series of mental states characterised by psycho-motor excitement and an exalted emotional tone.

(b) A series of mental states characterised by psycho-motor-retardation and a depressed emotional tone.

(c) A series of mental states in which there is no psycho-motor or emotional disturbance.

Strictly speaking, there are only two cases in which these phases appear at regular intervals: in one the cycle occupies three months, the change from one phase to the other occurring at the menstrual flux; in the other the change from psycho-motor retardation to psychomotor excitement occurs annually about the beginning of April. For the rest, the cycle has an average duration which, although it varies within fairly wide limits in some of the cases, warrants the use of the term "periodic."

During the third phase, that of psycho-motor and emotional balance, eight of the cases show no evidence of mental enfeeblement. Indeed, in looking over the records of these patients, one is struck with the fact that they show less change from year to year than do persons possessed of healthy brains. The

following note, made twenty years ago, nicely describes the mental state of J. K— to-day : "Full of moods and fancies ; gets into a pet very readily, and comes out of it as quickly ; fickle in behaviour, and much of her manner is affectation and vanity ; selfish, yet warm-hearted and impulsive ; has fancies about her health, but mostly affected so as to attract attention." In such a typical case there is, no doubt, a great deal of instability, but age has neither matured nor benumbed her mental faculties. On the other hand, the remaining nine cases show varying degrees of mental enfeeblement. Six of these are typical secondary dements, while the remaining three are respectively a high-grade imbecile, a paranoic, and an organic dement.

Although the differences between these two groups of cases are most marked during the phase of balance, yet they are scarcely less obvious during the phase of excitement. The psycho-motor excitement of the demented shows none of the kaleidoscopic qualities of that of their fellows. In each attack the phases and actions are reproduced with unfailing fidelity, and the deeper the dementia the more monotonous do they become. During the phase of depression psycho-motor retardation is often most strikingly exemplified among the mildly demented, but in the deeply demented it tends to be obscured by undue somnolence. The affective alteration is, however, much shallower among the demented.

Now the question naturally arises : Does the presence of dementia justify our separating these two groups into two distinct categories or are they fundamentally one ? The teachings of our text-books are somewhat at variance on this point. Some hold that periodicity is a very common characteristic of mental diseases and is essentially an exaggeration or perversion of the physiological diurnal, menstrual, sexual, or seasonal periodicity of the healthy brain, whereas the cases that have been called *folie circulaire* are merely typical, or exaggerated, or more continuous examples of pathological periodicity, which may terminate in recovery, in slight mental enfeeblement, and very rarely in deep dementia. From the point of view of pathogenesis the dementia has been regarded as the clinical expression of the want of vital resistance of the brain to the noxious agents responsible for the periodic upset. Others affirm that periodicity is a striking manifestation of the

subtle connection which exists between the syndromes of mania and depression, that cases of *folie circulaire* are the prototypes of all the various manifestations of a clinical entity—manic-depressive insanity—and are to be sharply contrasted with those forms of insanity which end in the enfeeblement characteristic of secondary dementia.

An examination of our cases to determine the incidence of the periodic attacks of excitement and depression relative to the appearance of the associated dementia, and the influence which the frequency, duration and severity of these attacks exert on the course of the dementia, shows that no relationship exists between these two clinical entities. The periodic attacks of excitement and depression appear and run their course quite independently of the dementia. Bursts of excitement and lulls of depression originate in, and periodically sweep, the brain of an imbecile, a secondary dement or an organic dement, fade away, and leave not a rack behind. A considerable degree of enfeeblement may be disclosed after the first outburst which the subsequent periodic visitations show no tendency to increase; or the enfeeblement may appear only after the fourth attack to deepen steadily after each successive outburst. Finally, such an alternating mental state may usher in a paranoid state without in any way affecting the systematising of the delusion-complex.

Now, if these two clinical entities with which we are dealing be independent of each other, can there be any relationship between the morbid processes which cause them? In the first place, let us consider the hypothesis that regards the morbid process responsible for these alternating mental states as likewise responsible for the enfeeblement, the enfeeblement being the clinical expression of the defective vital resistance of the given brain. It must be confessed that there are few clinical facts to support this hypothesis and many to controvert it. We have just seen that brains of so poor a vital resistance as those of an imbecile, a secondary dement and an organic dement may suffer no appreciable damage from periodic exposures to the supposed noxious agent; that brains which have shown defective vital resistance after a first exposure may show no such defect after subsequent ones, while brains which have shown no defect after a first may show their defect after each subsequent exposure. Not merely do such facts render this

hypothesis untenable, but they force on us the conclusion that the morbid process responsible for these alternating mental states is functional, whereas an underlying gross change is the cause of the dementia. Syndromes which periodically visit an otherwise healthy brain, or a diseased brain, without leaving a trace of permanent damage must be the expression of an error in the molecular structure of the nervous matter. This error may arise in any brain in which the concomitant chemical, dynamic, and nutritional factors necessary for its production have met; and it is most probable that some of these factors do in many instances originate in a morbid process which makes for enfeeblement. Once established, however, a vicious cycle is set up, which tends to perpetuate itself independently of these concomitant factors. The facts which have led to this speculation have been presented by Case 7. Here we have a patient the subject of arterio-sclerosis and showing the mental symptoms usually associated with such vascular degeneration, who sustains a gross vascular lesion in her cerebrum. Consequent on this we have the development of a mental state characterised by psycho-motor excitement and exalted emotional tone, and this followed by a mental phase in which psycho-motor retardation is very characteristically presented; these mental phases tend to return periodically although there has been no notable increase in the dementia during the phase of balance. The most probable explanation of these clinical facts is that some of the noxious products of the gross lesion have caused a structural change in the unstable molecule of the neurones of this arterio-sclerotic patient, which change manifests itself and runs a course in obedience to laws quite independently of the morbid process primarily at work in the brain.

Further, although we must regard the alternating mental states of an enfeebled brain as fundamentally akin to those of a brain not so affected, we must in no way appear to minimise the clinical criteria on which an attempt has been made to separate these two types of alternating mental states into distinct clinical entities. That they are essentially one is writ large, that he who runs may read; that they present differences in detail is obvious to the scrutiniser. The differences do not, however, warrant us in distinguishing them *quâ* excitement and depression; they rather contrast the capital value of the

affected brains. For example, the "press of ideas," a feature so striking in the maniacal state of manic-depressive insanity, and in marked contrast with the poverty of ideas in the excitement of the demented, is not an attribute of the respective excited states, but of the ideational value of the respective brains. The impetus to squander is identical; in one the ideational value is abridged. This clinical criterion is of value, then, inasmuch as it allows us to see through the excitement, which may complicate and obscure the clinical picture at any point of a dementing process, and recognise the presence of an underlying morbid process, sapping the very foundations of mental life.

It then appears—

(1) That alternating mental states may appear as episodes in the most diverse forms of alienation, imbecility, secondary dementia, organic dementia, paranoia.

(2) That they may usher in the clinical entity we recognise as secondary dementia, completely dominating the clinical picture; or they may appear at any point of its course.

(3) That some clinical criteria—restriction of ideation, intra-psychic ataxia, stereotypies of attitude, etc.—enable us to recognise in many instances the underlying dementia.

(4) That alternating mental states are the clinical expression of an error in the molecular structure of the nerve substance.

(5) That diverse nutritional, chemical, and dynamic factors may be responsible for this error, and a disease process already at work in the brain may be the source of some of these factors.

We shall now endeavour to record in as concise a manner as possible the essential clinical details of these nine cases. In Cases 1, 2, and 3 the dementia was well established before the alternating mental states developed.

CASE 1.—M. B. H—, æt. 39, was admitted in December, 1880. Her friends said she had been peculiar for over nine years. She had harboured a variety of delusions, been seclusive, and subject to hallucinations of hearing. On admission she was preoccupied, avoided notice, had a habit of nodding her head like a mechanical figure, was impulsive, and kept repeating, "My mother's a good woman; she did not poison my papa." The cycle of her mental phases has occupied

about three months, the phase of excitement being out of all proportion longer than the phases of depression and balance, so that from time to time she has been described as a chronic maniac. The date of onset of the excitement has unfortunately not been definitely noted, but it must have occurred about four years after admission. To-day she walks about during the phase of excitement gesticulating and talking in a very grand, but incoherent fashion. During the phase of balance she is inclined to talk in a subdued, half-shy manner, reads, plays the piano, sews and knits, imagines she is a queen and those about her her subjects. The phase of balance has seldom lasted longer than ten days and the phase of depression longer than a week; an inability to occupy herself and a tendency to somnolence have been the main features of the latter phase. The transition from this phase to that of excitement is very sudden.

It would be idle to seek to deny that there has been a deepening during the past thirty years of the dementia so characteristically represented by this patient on admission, but compared with the frequency, severity, and duration of the alternating states this is so slight that she offers one of the most convincing clinical proofs of our contention that these periodic attacks have no influence on the course of dementia. Bursts of excitement, so frequent and so long continued as to lead some observers to regard this phase as a chronic condition, must surely have wrecked the mind did they exert any conceivable hurtful effect on it.

CASE 2.—A. R—, æt. 24, was admitted on March 30th, 1891. Her uncle had been insane, and two years ago a sister, a typical secondary dement, was put under our care. The alienation was of five years' standing. On admission she was quiet, and freely aired delusions of a sexual nature; her behaviour was affected—simpering and childish; she was restless and could not settle to work. She was first noted as becoming excited on April 12th, 1891—restless, noisy, incoherent, threatening. Later on she became destructive, degraded in her habits, and impulsive. During January, 1892, the excitement abated and she passed into a state of mental torpor. April saw her awaken from this, and on May 5th she was described as a nice, pleasant girl, who talks readily and nicely, and occupies herself with knitting and sewing.

The cycle of her mental phases occupies roughly two years. The phase of balance lasts about a year, when she is listless, lacking in spontaneity and initiative, but neat and tidy, and a good worker. The six months of excitement show her destructive, dirty, and wanton; but during the three months of depression the speech is slow, movements are sluggish, and the facial markings blotted out.

The marked mental reduction which the alternating states involve in this patient is in striking contrast with the slight degree of enfeeblement; she is one of the most reliable of our secondary demented.

CASE 3.—R. D—, æt. 48, was admitted April 7th, 1907. She had, when seventeen years of age, a nervous breakdown, which left her weak-minded. The attacks of excitement and depression were of recent origin, and of increasing severity. Before admission she was excited, given to tearing off her clothes, and depraved in her habits. On admission she was silent, would not answer questions, and lay listlessly in bed.

The cycle is completed in six months; the phases of excitement and depression vary greatly in depth and duration, but the psycho-motor excitement and retardation are exquisitely represented. The degree of dementia is trifling, a numbing of the emotions, a restriction of ideation, and a lack of spontaneity in her actions.

In Cases 4 and 5 the alienation was ushered in by a phase of depression; in Case 4 this was immediately followed by a phase of excitement, but in Case 5 an intermission occurred.

CASE 4.—M. M—, æt. 45 years, was admitted on December 2nd, 1902. She was hereditarily predisposed. About seventeen years of age she became dull without any apparent cause. This lasted for some months, when she became excited and violent; she was taken to Paisley Asylum for treatment. After a few months she was taken home improved, but since this she has never been quite herself. She has had annually two or three attacks of depression, followed by excitement, which last about a month. On admission she was described as inaccessible, unsocial, but a good worker.

For some time past the cycle of mental phases has revolved in periods of nine months; the phases of excitement and depression occupy about three months, but their relative duration varies greatly. There is little mental reduction

during the excitement, but the retardation is very striking during the depression. Since she has been under observation there has been no increase in the dementia ; she is neat and tidy, a very industrious and capable worker, self-contained, but appreciating any little attention paid to her.

CASE 5.—M. W—, æt. 24 years, was admitted March 28th, 1887. She had shown mental depression for three months ; moped ; answered questions with difficulty ; thought her soul was lost, and wished to die. She attempted suicide, and required constant observation. On admission she was gloomy, preoccupied, refused to answer questions, and aired delusions—*e.g.*, she had killed her friends. She improved under treatment, and was discharged recovered on August 13th, 1887. Nothing abnormal was noticed in her mental state during the next five years, but she was re-admitted on April 25th, 1893. She was restless, talked to herself, obeyed requests, but mistook the identity of those about her. She had occasionally acute maniacal outbursts. The excitement gradually abated, and during October, 1893, she got stout, with no improvement in the mental symptoms. Since then the enfeeblement has been very extreme ; she has always been repellent, unsocial, and unable to employ herself usefully.

About every three months she has attacks of excitement and depression ; they are of short duration—ten days to a fortnight—and are not sharply differentiated from each other, her mental state being one of maniacal stupor.

In Case 5 we have from the very outset to deal with a dementing process, which was manifested by a simple, affective state so completely recovered from that it was not possible to detect any enfeeblement. Such intermissions are not uncommon in dementing processes. A relapse five years later, however, set up the alternating mental states, and coincidentally caused a serious impairment of the mental faculties. In our next case the onset is quite on a parallel with this, but the courses which the dementia runs in the two are in striking contrast. In Case 6 a dementing process manifests itself by outbursts of excitement. The first three attacks are so completely recovered from that the patient is able to take up the threads of her daily life. After the fourth attack enfeeblement is definitely noted and goes on steadily progressing, its course being broken by periodic outbursts of excitement and depression.

CASE 6.—N. B—, a teacher, admitted in her third attack of excitement. She had been ill for one month. She had a very marked hereditary predisposition; three sisters had been insane; two of them, typical secondary dementers, are at present in Gartnavel. On admission she was mildly excited, restless, and talkative. On January 20th, 1890, she was noted to be quiet, well-behaved, and talking rationally; on May 1st she was discharged recovered. She remained well until June 1st, 1891, when a return of the excitement made her re-admission necessary. On July 9th, 1891, she was noted "to be as well mentally as she is ever likely to be." Mental depression was, however, displayed on September 2nd, and she developed neurasthenic symptoms. On June 7th, 1892, she was discharged "as well as she ever will be, although she cannot be said to be strong-minded." She was again under treatment from January 7th, 1896, to May 19th, 1896, for her sixth attack, but since May 9th, 1899, she has been in constant residence. During this time there has been a steady increase in the mental enfeeblement. This could be nicely judged by the loss of interest she displayed in the well-being of her sisters; during the past two years she has shown practically no interest in them. The periodic attacks of excitement and depression occurred for a time as frequently as every three months, but lately they have been separated by wider intervals, and during the past twelve months there have been none. They have been of short duration, rarely lasting beyond a fortnight, and have been of the nature of maniacal stupor, the depression and excitement being inextricably blended.

The last three cases differ from the foregoing inasmuch as they are not secondary dementers during the phase of balance. In Case 7 the enfeeblement dates from birth.

CASE 7.—H. G— first came under observation at the age of 57. An injury at birth was said to have left her mentally deficient, but she had been capable of considerable education and was able to attend to herself in most things. At the age of forty she began to have excited periods, which steadily got worse until she could no longer be managed at home. Since coming under observation the cycle of her mental phases has occupied roughly twelve months. About the end of March she becomes restless and sleepless; talks incessantly, either in conversation with some imaginary person or repeating snatches

of nursery rhymes; bursts every now and then into loud, mirthless laughter, and keeps calling for "John." This phase lasts for about three months, after which she gradually passes into a condition of stupor, is quite inaccessible, and sleeps a great deal. This phase lasts from two to four weeks and she returns to her usual phase—a fairly high-grade imbecile.

In Case 8 an alternating mental state ushers in a paranoid state and persists without having any influence on the building up and systematising of the complex of delusions.

CASE 8.—M. J. M—, æt. 57, first came under observation in September, 1899, in a state of mental depression in which psychomotor retardation was strikingly manifested, and complaining that voices accusing her of committing crimes spoke to her during the night. Soon after admission she passed into a condition of mild exaltation. The cycle of the mental states occupies roughly six months, but underlying all her phases and tinting the picture throughout she has a complex of delusions. On a voyage home from Australia she was secretly married to a man who is a Jesuit in disguise, and who is related to a lady, a sometime fellow-patient of Miss M—.

In Case 9 the alternating mental states complicate, without affecting the course of an organic dementing process.

CASE 9.—J. R—, æt. 64, was admitted to this asylum October 9th, 1909. Her mother was said to have "wandered" in the last years of life. In October, 1906, she had a paralytic seizure, which soon cleared up. About the end of 1908 she became very irritable, jealous, given to nagging, and vaguely suspicious of her son and daughter-in-law. On October 2nd she had an attack of aphasia, and kept repeating "brother," "express," "excite." On October 3rd she was quiet, and slept a great deal, but on October 4th she became unmanageable—talkative, airing grandiose ideas, restless, packing and unpacking her belongings. On admission her general condition was very indifferent. There was a right facial palsy. The tendon-jerks were exaggerated, but equal on both sides. Patellar, but no ankle clonus, was elicited on both sides. The arteries were hard and tortuous, but the cardiac phenomena were normal. The mental condition showed great psychomotor excitement, great restlessness, constant employment; the patient was very talkative, promising motor-cars, seal-skinackets, etc., to all and sundry. She gradually passed into a

state of depression in which she was inaccessible, unable to employ herself, and harboured delusions of suspicion against those about her. She gradually emerged from this phase and showed herself self-contained, a good worker, and interested in all that went on about her, although her memory for recent events was defective, and she was vaguely suspicious of her son and daughter-in-law. Since then she has twice completed her cycle of mental states.

On the Mechanism of Mental Processes, with Special Reference to Emotional Control. By GEORGE RUTHERFORD JEFFREY, M.D.Glasg., M.R.C.P.Edin., Senior Assistant Physician, Crichton Royal Institution, Dumfries.

SOME psychiatrists attribute great importance to the neuro-insane diathesis as a factor in the causation of insanity, whilst others belittle its influence. The term is misleading, for it suggests that this diathesis is confined solely to the mentally afflicted, and, further, its precise meaning is vague. A person is generally accused of possessing the neuro-insane diathesis if he presents a temperament which appreciably diverges from the mean of the sanguine and of the phlegmatic; if his actions are unduly strenuous or torpid, his expressions unwarrantably enthusiastic or lukewarm, his moods very variable or religiously constant; in brief, the neuro-insane diathesis may be resolved into a tendency to psychic or motor reaction disproportionate to the exciting stimulus. In common speech the person is emotional. But every person who is emotional is not an incipient lunatic. The faculty of conceiving undue enthusiasm, of persevering unfalteringly in ambition, in order to attain the acme of success in any sphere of life, demands an emotional power in excess of the normal. It is ridiculous thus to brand the best men of all nations as possessors of the neuro-insane diathesis. The term, with its plausible air of scientific accusation, is misleading and vague, and should be wholly discarded. All that psychiatrists wish to convey by it may be more accurately and more descriptively called the emotional diathesis.

The importance of the emotional diathesis in the production of neurasthenic and hysterical states is generally acknowledged, but its influence in the genesis of a definite attack of insanity is still undetermined. In such an intricate subject as insanity it is particularly difficult to isolate any special ætiological factor, to trace its influence, and to determine its precise significance in the production of mental disease. Thus heredity has been incriminated and has been alternately blamed and acquitted for generations, specific micro-organisms have been alleged to be pathognomonic of certain forms of insanity; endogenous and exogenous intoxications have been held to be all important; and many, believing that insanity is, as is physical disease, a name given to a definite morbid evolution in its entirety and not to any phase, put heredity aside with scepticism, and although admitting that in many cases there may be a predisposing soil, they turn to the laboratory as being the only source of truth. I do not intend to deprecate the prime importance of laboratory investigations, but I wish to lay stress on several factors in mental mechanism which I think are well worthy of attention in the study of the problem of the causation of insanity. Whilst recognising the importance of auto-intoxications, I shall not discuss them in this paper, but shall turn to another aspect of the causation of mental disease, an aspect which leads to the consideration of the disposition of the diseased individual, and takes one back to the commencement of that individual's life. We are forced, therefore, to consider the character of the nervous system with which that person was endowed.

Few people react identically to the same tests, tests which involve, for example, self-control, reason, and judgment. This being so, "dispositions" undoubtedly vary, and this variance may be far removed from the normal line. Variations of morbid extent are evident in such pathological conditions as hysteria and neurasthenia, but even in the conduct of every-day life, in the outward expression of the emotions in individuals apparently normal, there are infinite shades of variation. Even in the same individual the outward response to psychic stimuli varies from time to time according to what is vulgarly termed his "mood."

In a well-balanced brain the emotions are under control, and the conduct is normal. Abnormal conduct is essentially indi-

cative of abnormal emotions ; but if conduct is normal it does not necessarily follow that the emotions are likewise, for the cerebral control of the outward expression of emotion may be sufficient to mask even a considerable emotional storm.

To have a basis to work upon we must conceive a type of character in which emotional responses in all circumstances bear to the stimulus which calls them a relation which is neither exaggerated nor unduly diminished. This fine adjustment of external response to exciting stimulus we may regard as an ideal normal.

Abnormal emotional states manifest themselves in extraordinary responses to ordinary stimuli ; thus we get states ranging from excessive irritability to profound depression called forth by incommensurate causes. The controlling influences of reason and judgment may mask such unnatural manifestations, and bring back to the ideal the outward responses even of abnormal emotion.

These emotional states have physical concomitants. We recognise, for example, vasomotor changes like blushing and pallor, secretory changes, as " parched " mouth, tears, and sweating, rapidity of respiration, palpitation and visceral sensations, as accompaniments of fear, joy, anger, sorrow, and other aspects of emotional stress. These signs undoubtedly arise from excitation of medullary centres. The emotional storm produced by the exciting stimulus has overflowed ; it has exceeded the limits of the cerebral power to restrict emotional manifestations to the psychic areas ; it has spread from the cortex to the medulla. This power of cerebral control depends upon the richness and completeness with which cognate psychic areas are associated. Our ideal normal brain depends, not upon its size nor its number of cells, but upon a thorough co-ordination of its parts by a well-ordered system of association fibres.

Emotionalism is characteristic of childhood. In the infant all its outward manifestations are those of two emotions—content and discontent ; smiles and tears are its only outlet of its emotional experience. Gradually motor control develops and the child becomes able to express, to qualify, or even to conceal its emotions. A stimulus such as that to which hunger gives rise travels along the tenth nerve to the medulla and thence to the frontal cortex. In the infant a reflex implication

of the motor area produces, as the stimulus gradually increases, first, whimpering, and then more or less lusty crying. The gratification of the hunger is reflected to the child's cortex along the same path; thence pursues a contrary reflex path, inhibits the tears and initiates the calm of contentment.

In the infant the most intimate association of its cerebral perceptive centres is with areas subserving their outward expression. Gradually it learns to delay and to mitigate these expressions, to differentiate cognate stimuli, and appropriately to specialise its responses to them. As the intelligence develops, the tendency to the simple reflex chain—afferent stimulus, cortical perception, reflex stimulation of a cortical motor centre, associated with the stimulation of the medullary nuclei and external response—becomes less; more and more the primary perception is subjected to further consideration by associated psychic centres. External response becomes less and less a simple reflex, and more and more the resultant of the effect of the action of complex controlling psychic processes upon the different stimuli. In childhood, to a less degree in adolescence, and even in many adults, this reflex outward expression of emotion may remain in part beyond the power of conscious control. The degree of control developed will depend upon the degree of the development of the associated areas; thus in our conception of the ideal brain only extraordinary stimuli could possibly produce a sub-conscious emotional reaction, could possibly unduly excite the medullary nuclei. Adults in whom the controlling association areas are insufficient in number, imperfectly or irregularly developed, possess the emotional diathesis. Their response to emotions is badly regulated either in quality or in degree.

The emotional diathesis may result either from a hereditary predisposition (1), or from the effects of vicious training; and its maximum development may be expected where these conditions co-exist. The frequent heritage of the emotional child is not only its morbid predisposition but also its unfortunate environment.

Gross structural lesions such as occur in embolic softenings, destructive hæmorrhages, cerebral tumours, inflammatory processes, interfere with the integrity of the mechanism of cerebral association which subserves psychic control of the emotions; thus a morbid reversion to the primitive emotional state may

occur. In the cerebral hemiplegic emotional symptoms are common, for the structural lesion which impairs the intellectual control of motivity also impairs the intellectual control of the emotions.

McDougall (2) has recently pointed out that the ratio of resistance to energy is a determining factor in the continuance of psychic processes. He alleges that the principal seat of resistance is at the synapse or place of junction of the neurones, and not in the actual cell-body itself, and that frequently repeated stimuli constantly passing through the synapse will increase its resistance until there is induced a state in which the resistance more or less completely blocks the passage of the stimulus. Such is his explanation of the physiological process of fatigue, by which psychic centres and their associated areas can be temporarily rested. In the period of rest the resistance gradually returns to normal, and the stimuli can once more elicit their response.

In the process of work in the normal brain one stimulus succeeds another, the resistance is gradually heightened until the ratio of the stimulus to the resistance is such as to induce a "feeling of fatigue." The tendency to prolonged stimulation in this manner is obviated, and fatigue is thus a protective mechanism. For example, when we are engaged in difficult intellectual work this feeling of fatigue occurs after a time—it diminishes the "interest" in the work, and leads to its cessation. Repose permits of anabolic processes, which result in the return of the normal resistance. If, however, we are suddenly aroused from our "feeling of fatigue" by the accession of a new "interest" we again become alert, and for a time following can resume work. If, then, those stimuli are constantly passing through the synapse an abnormally high resistance becomes constant, for the intervals of repose are inadequate to allow of the complete restoration of the normal resistance. Long-continued overwork may thus act injuriously even on a normal brain, and the emotional diathesis is acquired (3).

Let us liken the infant brain, with its primitive sensations, to a man starting to earn his living by the outcome of his energy at, say, for example, a small forge. His work at first is well within his unaided powers of achievement, and in his small way he succeeds. As his work increases, as the demand is more than he can comply with satisfactorily, he employs one

assistant and then another ; the output is greater. As his sphere of work increases, as the demands upon him become greater, he builds new forges, extends his business and activities, until he controls a large concern comprising many departments, all woven into a harmonious whole, and presided over by deputies. The work goes on, it is thoroughly organised, its inner workings and management are beyond his immediate control, he now solely directs. The initial workings at the forge, the initial output from each small subdivision go on unknown, except from what he remembers of his early experience ; they have become subconscious.

When a stimulus is applied to a sensory end-organ it passes along an afferent nerve to a primitive centre. There it is re-distributed, and thence it goes to the great sensory receiving and exchanging mechanism, the optic thalamus ; thence these stimuli are re-directed and pass to the perceptive centres in the cortex, and thence to their primary and secondary association areas. The resultant of all these activities is again reflected to the cortex, and a regulated external response is expressed, this being accomplished by speech, facial expression, or by any other index of emotions.

In terms of our analogy, a message—the stimulus—is spoken into a telephone—the peripheral sensory end-organ ; it travels along a wire—the afferent nerve—passes through one or more exchanges, and then reaches the other telephone—the optic thalamus. It is there heard by the director—the cortical perceptive centre—and he refers it to his various departments—the association areas. By means of a subsidiary telephonic system—the associated tracts—as each department receives its message it arranges the details of the work proper to its own particular sphere, and the product of these activities is reflected back to the director, the resultant manifesting itself externally by action or by rest.

The proper working, therefore, of the normal brain depends upon the completeness and number of the association tracts. If the organisation is such that each stimulus is properly reflected then there is a normal reaction. For example, suppose an order to be received ; by the combined activity of all departments it has to be executed. If one department is defective then its particular aspect of the work is poorly performed, the other departments have thrown upon them its work

as well as their own, hence the whole standard of efficiency is lowered and a state of strain chronically pervades the whole concern. One department may be sufficient in itself, and over-develop for the turning out of some particular commodity at the expense of the others. The concern will probably be able more quickly and more efficiently to supply this particular commodity than other better organised and more evenly balanced businesses. So in the brain where one set of association fibres have been developed at the expense of the others, the result may manifest itself as genius.

In the emotional brain if there is a deficiency in number or an inadequacy of the associated fibres—a state which may be constitutional or acquired—a stimulus sets in motion primary perceptive centres, but its secondary areas are deficient; there is an unbalanced emotional response. Each department, in ordinary routine circumstances, performs daily a certain definite amount of work. We may suppose the work ceases when the orders emanating from the director cease, or again, to place this on a more mechanical basis, when the telephonic communication between the director's bureau and the various departments automatically ceases owing to the increased resistance in the dry cell batteries which work the telephones making further communications impossible; work ceases for the day in all but the most primitive parts of the factory until the sufficient period of repose has elapsed, thus allowing the resistance of the telephonic circuits to return to normal, and permitting of another day's work to begin with renewed energy.

In the brain, when the normal working capacity is used up, the stimuli passing from the primary perceptive centres to the myriads of association areas have induced a high resistance in the synapse, and this being sufficient to block the passage of every-day stimuli, repose is ensured.

In the case of the factory, if at the close of the normal working day an urgent order be received, fresh circuits of communication may be opened up. The thoroughly organised reserve forces are drawn upon, and the extra work, after being properly redistributed throughout many subordinate departments, is performed with a minimum amount of strain on anyone. The urgent order, therefore, has acted as a fresh stimulus, and the amount of energy it inspires varies with its magnitude and its urgency. But if the business be not

properly organised, if already tired workmen have to be driven to exhaustion in order to cope with this emergency, then there is a spell of working at such prolonged pressure that it may result in the disintegration of the whole concern; there is a strike of the employees, a total inadequacy to fulfil fresh orders, and a complete arrest of output. The urgency of the order is comparable with the degree of interest in intellectual processes.

Thus, if we return to McDougall's conception of the person engaged in difficult intellectual work, the person at first becomes sleepy and tired and he is unable to take interest in what he is doing; but if he takes up an interesting novel his activities are re-awakened, so that after a time he can again resume his former reading. Again, through time he becomes sleepy and tired; suddenly someone calls upon him with interesting news, and once again his activities are renewed and he can resume his former work with interest for a time, showing, as McDougall points out, that what we call fatigue is no entity, and that "the symptoms of fatigue are always the expression of the relation between at least two things—between, on the one hand, the work to be done, and on the other hand the amount of energy available at the moment for doing the work"; that is, for the passing of the stimulus from the primitive perceptive centres along the fibres and synapses to the secondary centres and areas.

Thus a well-balanced brain may indulge with impunity in prolonged spells of overwork, but an emotional brain tends to pass into a chronic state of strain. Stimuli passing through the synapse first of all bring about fatigue; this call to repose is ignored and a state of chronic fatigue is induced, and want of rest continuing over lengthy periods so elevates the resistance along the association tracts that normal stimuli produce no reaction, and there is induced a state of psychic paresis or aboulia.

It is conceivable that when the resistance between the primitive and the normal secondary association areas is inhibitive, the stimulus may overflow from the primitive perceptive centres along remotely connected associated areas, and thus produce certain forms of perverted responses such as are seen in the paranoid forms of insanity. In such cases delusions are outstanding features, but in the analysis of these delusions there is often a closely reasoned sequence, showing that

through the faulty connection of different brain areas there is, as a result, a faulty expression of perception, association of ideas and judgment.

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Clinical Aspect and Treatment of Asylum Dysentery.⁽¹⁾

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THE object of this paper is to set out briefly some of the chief clinical points observed during an epidemic of dysentery at the Devon County Asylum, as the treatment of this disease still leaves much to be desired with a mortality of nearly 1 in 5 for all asylums in England. The epidemic started two years ago, and although the number of cases has much diminished during the past few months, there are as yet no certain indications that the epidemic is drawing to an end. Personally I have only seen those cases which have occurred since October, 1909, *i.e.*, 142 in a period of twelve months.

Seasonal incidence, ætiology, etc.—The seasonal incidence during the twelve months showed a marked increase during the winter months. This is fairly well demonstrated by the chart shown. These cases were not evenly spread over the period of time concerned, but rather tended to come in batches of three, four or more during or immediately after a period of wet and cold days, not only in the winter months, but during the summer months as well.

It looks as if the virulence of the causative organism is increased by a lowering of temperature or by an increase of moisture in the atmosphere, the latter being probably the more important factor, owing to the prevalence of the disease in the summer.

The type of patient affected was very characteristic, the great majority of them being weak, debilitated, and mostly aged

patients, whose resistance to disease of any infective character is very poor.

If imbeciles and demented of various kinds are grouped into one class, they are found to have accounted for no less than 71 *per cent.* out of the total number of cases, and 72 *per cent.* of deaths.

Another type of patient which showed still worse resistance to the disease when once infected was the depressed one, who can appreciate the nature of his illness, but does not want to improve, and in a total incidence for males and females of fifteen, no less than five died.

Course of disease.—As regards the onset of the disease, in a typical attack, vomiting, with a sudden sharp rise of temperature of two or three degrees, and increased pulse-rate, in fact, the general signs of a febrile attack, were common symptoms before the diarrhoea set in. The patient was generally found to have been constipated for a day or two, and in a large number of cases even required an aperient before the diagnosis could be confirmed by the presence of blood and slime in the motions. In about half the number of cases diarrhoea with blood and slime in the stools was the first symptom noticed. In some cases sudden collapse was the first sign of the patient being ill at all. They very rarely complained of pain, but abdominal tenderness along the course of the large bowel could be made out in almost all the cases.

The disease then followed its usual course of diarrhoea with small motions, consisting chiefly of slime and a little blood and small pieces of mucous membrane, the temperature remaining above normal, while the blood and slime were present. Tenesmus was only present in those cases sufficiently well mentally to complain, and proved very distressing to the patient. It was very difficult, therefore, to determine the frequency of its occurrence, as well as that of tormina.

Complications.—Of the complications the most serious was pulmonary engorgement going on to true hypostatic pneumonia. In all the cases which proved fatal within the first week of the disease (*i.e.*, one-half of the total deaths), it was present on the first day on which the patient was noticed to be ill, and it was found in all the fatal cases subjected to a *post-mortem* examination.

Another serious complication was vomiting, which quickly

yielded to small doses of tr. iodi every hour in all but two cases, which proved rapidly fatal. Excoriation of the skin around the anus was fairly frequent, especially in the wet and dirty cases.

Hæmorrhage never proved troublesome, whilst perforation of the intestine occurred in one case only, and proved fatal within a few hours.

Arthritis of the knee occurred once. In two cases chronic diarrhœa with the occasional excretion of blood and slime set in, and has resisted treatment, one patient now having been under treatment for sixteen months and the other for nine months.

Treatment.—The routine treatment adopted has been that of intestinal lavage with large doses of saline purgatives (1 drm. each of mag. sulph. and sod. sulph. every hour), the treatment being practically the same as that adopted by Dr. Stewart in the earlier part of this epidemic, and an account of which has appeared in the *Journal of Mental Science* (April, 1910).

As soon as the blood and slime appeared in the stools, the patient was given these saline purgatives in the doses just mentioned, every hour day and night, until the motions were free from blood and slime, when the temperature would generally come down to normal.

An astringent mixture, containing catechu or hæmatoxylin, was then given every four hours until the diarrhœa was controlled and the motions were quite formed again.

But, unfortunately, in a fairly large number of cases the patient was too weak to undergo such a severe treatment, either because he was too weak from the very start, or became too weak as the result of the constant drain on the bodily fluids caused by the diarrhœa and increased by the treatment. In these cases the saline purgatives were given at less frequent intervals, or had to be discontinued for a period of several hours at a time, but with very unsatisfactory results, as the toxæmia naturally increased. It was amongst these cases, *i.e.*, those too weak to undergo the lavage treatment, that the fatal cases occurred. In order to counteract the increased toxicity due to the discontinuance of the treatment necessitated by the weak state of the patient, it was thought that an intestinal antiseptic might prove useful, and izal was given accordingly, with encouraging results, the temperature almost invariably

coming down to normal within twelve hours (unless there was some pulmonary complication present), and the general signs of a febrile attack being much improved.

It did not control the excretion of blood and slime, but it helped the patient to regain enough strength to undergo another course of mag. and sod. sulph.

As this form of treatment (*i.e.*, with izal) seemed fairly encouraging it was tried in some severe cases from the very first day of the disease. The results were again very gratifying, especially in very old patients, who undoubtedly would have succumbed to the disease if left untreated. In these cases a morning and evening purgative were given in addition. The doses used were $\text{m}\nu$ of izal every hour, day and night, or proportionately larger doses at longer intervals, especially in tube-fed patients, until all traces of blood and slime had disappeared from the stools.

This form of treatment (*i.e.*, a course of izal only) has given sufficiently good results in the small number of cases in which it has been tried (*viz.*, thirty-four cases with two deaths) to justify its use on a larger scale, as the treatment by mag. sulph., though undoubtedly the most useful for mild cases, is far too exhausting to be used indiscriminately. The lactic acid treatment was given a trial for three weeks in mild cases, but proved useless, as the patients were still passing blood and slime at the end of that time. The infection is too virulent and too rapidly fatal to be amenable to such a slow form of treatment. As regards stimulants, ammon. carb. proved very useful, when given from the very start of the disease, to old patients who threatened lung complications. Brandy in varying amounts was also given.

Large cold water enemas, repeated several times a day, proved very useful in those cases in which the tenesmus was severe, especially in wet and dirty patients, as these generally kept clean for at least a couple of hours after the enema.

Although the form of treatment adopted in this epidemic undoubtedly brought about the recovery of a certain number of cases who would otherwise have succumbed to the disease, the case mortality was as much as 17.6 *per cent.*, as compared with 22.1 *per cent.*, which is the average reckoned by the Commissioners in Lunacy for all asylums in the Kingdom for the last twelve months.

It is also impossible to say how often the patients would have recovered of themselves without treatment, as in three very mild cases, where all medicines were refused by the patients, complete recovery took place within a few days.

The number of relapses was 8 on 117 recoveries. Owing to the uncertain results obtained by the various anti-dysenteric sera they were not tried at all in this series of cases.

Diet.—The diet in the majority of the cases consisted of milk and arrowroot while the diarrhœa lasted, and was gradually increased afterwards, fruit and green vegetables being withheld for at least two months after the disappearance of symptoms.

In conclusion, I should very much like to know what forms of treatment are adopted by members of the Association and with what success, especially in regard to anti-dysenteric sera, as the present rate of mortality of 1 in 5 or 6 is a very large one.

(¹) A paper read at the Autumn Meeting of the South-Western Division, held at Bristol on October 28th, 1910.

On Insanity and Marriage.(¹) By G. H. SAVAGE, M.D.
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THE subject of marriage and insanity is one which is at present beyond practical legislation in this country, but is of immense importance for the social stability and for individual welfare. Though we cannot legislate we have to advise, and our advice is sometimes taken. The lay public as a whole, and the majority of medical men, would at once reply to the question as to the insane ever being allowed to marry in the negative, but I shall contend that a dogmatic statement of this kind is unscientific and unpractical. Such a declaration is taking it for granted that all insanity is alike and is to be treated as of equal value. I shall begin, then, by saying that in my belief certain persons who have suffered from a degree of mental disorder which may be classed as insanity may yet recover and marry with no real increase of risk to their partner or to their children. If I say this, you will next expect me to give examples of the forms of insanity which I should consider as not being of vital importance.

LVII.

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First, then, I have seen a good many adolescent cases with melancholic symptoms, many with marked hypochondriacal ideas who have recovered, and have after the interval of some years married and have borne the burden and heat of the world with sanity and well-being.

Again, I have met with a good number of adolescent cases with maniacal excitement who have recovered completely, and have had no recurrence of mental disorder, and who have married and have remained healthy and sane.

Rather apart from such cases, I have met with cases of women who, having had attacks of insanity before the menopause, have married when past child-bearing and have remained well ; but few would recommend such unions.

I have seen a few cases in which there was acute delusional insanity, probably toxic in origin, in which recovery has taken place and in which satisfactory married life has followed, but I admit at once that I should hesitate before advising marriage in such cases. I think in all these cases the question of family neurosis must be considered, and would influence one's advice. Again, cases in which after recovery the patient had been free from dread of recurrence are more favourable than those whose dread may act as auto-suggestion. Doubtless many of my audience can give examples of other forms of cases of insanity in which marriage might be justified.

And now as to the cases in which marriage should be hindered or prevented. In no case should it be allowed where there is a history of periodical recurrences, and it is certain that there is very grave risk in those cases of adolescents who at puberty and with adolescence have periods of depression and buoyancy. I have seen a good many such cases in which there has been marriage in haste with a leisure of repentance. I think suppression of the facts as to such attacks should really be a ground for declaration of nullity.

It is so firmly established in the public mind that direct heredity is the chief cause of insanity that the question as to marriage of persons with insane relations is constantly brought before one. It is impossible to prevent marriage of all related to the insane ; if you did you would not benefit the race, and I have seen many instances of breeding out of neurotic types.

Neurotic heredity certainly must influence your advice when you have to decide when the patient has symptoms of some

form of insanity, such as delusional insanity, which is generally met with in members of insane families.

I would never allow marriage in any cases where there are fully organised delusions or hallucinations. I have met with cases in which a man has slowly isolated himself as the result of concealed ideas of persecution, and in one case I have known such a one marry with the one idea that he thus was getting a protector between him and his tormentors. In this case a nullity was decreed. I learnt some years ago of the danger of acting on what appeared to be justifiable grounds in such a case.

A middle-aged man of independent position had developed general alopecia, and had become terribly sensitive to the notice of the persons whom he met. Doubtless they looked at him, but he misinterpreted their looks and gradually shunned society. He would only go out after dark, and then alone. He had hallucinations of hearing, and was profoundly suspicious. He contracted influenza, which was followed by pneumonia, and during his very severe illness he was nursed most carefully by a woman of middle age. He was very grateful, and was persuaded that there was at least one human being who did not detest him. He offered her marriage, and after seeing her I decided that, being past child-bearing and understanding the possibilities of a future re-development of the disorder, she might marry him. It was arranged that in any case a fixed income should be settled on her. All went well for a time, but again the delusions arose, and he nearly murdered his wife, and had once more to be sent to an asylum. Next, I cannot think that marriage should ever be permitted in cases in which there has been epilepsy with any mental symptoms. I am in doubt whether any epileptic should be allowed to marry, but I have in my mind at present several instances of women subject to *petit mal* who have lived and had healthy children though epileptic. Yet the risk is very great. There can be no doubt that with any form of mental disorder epilepsy should be a bar to marriage.

It is, I admit, difficult, and apparently hard, to say to a girl of twenty, subject hitherto only to nocturnal attacks, that she ought not to marry, but my experience makes me say this strongly.

I feel equally strongly about marriage in cases of moral

perversions ; I have seen so many wrecked lives of women who have married drunkards with the notion of reforming them. Marriage, like other events in life, may check a few in their downward course, but I should be strongly opposed to advise the risk to anyone whom one loved. Again, in cases of sexual perversion and in cases of impotence the advice to marry is certain to be dangerous, or worse.

Nearly allied to these cases one has to consider those of general paralysis of the insane, and I fancy many of us have had difficulties in these cases. Men with early acute symptoms may apparently recover before you are really certain that the disease is general paralysis of the insane, and then after a short period with the feeling of buoyancy and with general amorousness the patient wishes to marry, and I have to admit that I have been obliged in some cases to say, "Well, I think it is a mistake, but I cannot be certain as yet that the disease is general paralysis of the insane." I have known disaster follow rapidly after marriage in such cases. In fact, I always feel grave risk in not preventing marriage in any case in which there has been clear evidence of constitutional nerve trouble depending on syphilis. I have seen miserable results following marriage of tabetic subjects, as well as in those who have had some local cranial nerve affections.

Marriage should never be recommended as a means of cure. In so-called hysterical cases the prospect even of relief is small, and the risk of permanent alienation is great. I have seen several cases in which after such marriages there has been separation, and others in which application for divorce has been made. I would speak equally strongly against marriage as relief for so-called neurasthenia or hypochondriasis, and I have already said that for sexual disorder it is dangerous.

Allied to the above subject is that of insanity and divorce, but as this is likely to be brought before the Commission at present sitting I shall not speak on the matter.

I leave, then, the points for discussion to be :

Should anyone who has been certified as of unsound mind be allowed to marry? If so, which cases or which forms of insanity may be considered as not barring healthy unions and healthy offspring?

Should not the recurrence of any form of insanity be a bar?

Should evidence of syphilitic affection of the central nervous system bar marriage?

Should marriage ever be recommended in cases of mental disorder?

Should insanity be a plea for divorce?

(¹) Opening paper read in the Section of Psychology and Neurology at the Annual Meeting of the British Medical Association, London, July, 1910. Reprinted from the *British Medical Journal*.

JOINT DISCUSSION

on

Dr. SAVAGE's paper, "On Insanity and Marriage," and Dr. EWART's paper, "Eugenics and Degeneracy" (see *Journal of Mental Science*, October, 1910, pp. 670-685).

At the Quarterly Meeting held in London, November 15th, 1910.

Mr. CRACKANTHORPE said that the most gratifying thing to him as an outsider and a social inquirer was to find that the subject which had been dealt with by Dr. Savage and that of Dr. Ewart's paper were engaging the attention of an important scientific meeting like the present. It was now forty years since Sir Francis Galton published *Hereditary Genius*; and he followed it up twenty years afterwards by another book called *Natural Inheritance*. The beginning was small, but the subject was now assuming enormous importance. One had only to consider what had happened in regard to the Divorce Commission, which had been alluded to by the authors of both the papers. The Commission started with the notion that the venue of divorce should be extended to county courts. Now that the question had grown so much it was encouraging to all social inquirers, not only throughout England, Scotland and Wales—Ireland did not look at those things—but on the continent generally. He was much interested and gratified to hear Dr. Savage's paper, and desired to congratulate that gentleman on it. Dr. Ewart and Dr. Savage had traversed different lines of thought. In Dr. Savage's paper he rather missed that which he found so fully developed in Dr. Ewart's contribution, namely, a consideration of the effect of insanity upon children. Dr. Savage did say he discountenanced the marriage of epileptics and of those suffering from other forms of mental disturbance; but he did not insist, at all events so much as did Dr. Ewart, on the transmissibility of insanity. What eugenists, like himself, wanted to know was to what extent and in what forms insanity was hereditary? He ventured to say to the Divorce Commission, who pressed him on the point, that the recurrent insanity which Dr. Savage dealt with was a much more dangerous thing than permanent insanity; because the subject suffering from recurrent insanity was periodically given his or her liberty, and the woman often became the mother of children, had a relapse, and went back again. The same thing happened with them as Miss Dendy stated with regard to the feeble-minded—that the feeble-minded, when they were let out, became mothers. And as Nature seemed to have ordained that these people should be more prolific than those of sound mind, they populated the country in their own districts with feeble-minded children, and that was very much to be deprecated in the interests of the community as a whole. Dr. Ewart dealt with a large field of both positive and negative eugenics. With regard to negative eugenics, he (the speaker) wished to submit to the meeting that the time had arrived when public opinion should insist that people did not marry, or rather that they were not given in marriage—which was much more often the case in regard to young women of good social standing—without some previous inquiry being made as to the sort of family into which the girl, in the one case, or the young man in the other, was going to enter. In his own personal experience he had known many people who had married blindfold, and after having been married two or three months something queer had happened,

the husband had displayed some erratic quality, and on inquiry—of course, after the door had been shut by the marriage—it had been found out that the aunt, grandmother, or brother, or all of them, had been under restraint from time to time. That was a most distressing thing, distressing to the parties, and distressing to the next generation. It was time that sort of thing was stopped, and it was to the medical profession the general public looked to put a stop to it by saying, as he hoped it would be shown they were able to say, what was and what was not transmissible disease. The evil did not stop at insanity, but included all the disorders which meant mental deterioration or physical degeneration as the result of producing in the world children who never could support themselves and must be a burden to their parents. If that time should come merely by the growth of scientific knowledge on the one part, and of lay enthusiasm on the other part, we should probably arrive within reasonable distance of the State requiring that there should be produced some *prima facie* testimony of fitness before people were allowed to marry. How could anything be more absurd than the state of affairs at present existing? Two people, presumably belonging to the Church of England, became engaged to be married, and the only precaution taken was that the banns were published in churches which they and their relatives probably did not attend, and the lawful impediment which one was asked to declare in the vestry—the *only* lawful impediment—was that the man was the uncle of the bride, or that there was some other forbidden affinity between them, or a consanguinity, which was specified in the table of kindred hung up in the church and to be found at the end of the prayer-book. If anyone present at such a ceremony were to say: "The marriage you are going to celebrate next moment you ought not to celebrate, because I know the man's and lady's families are brimful of lunacy," he would render himself liable to an action for slander, and if the marriage did not proceed the bishop might hold that the minister was not performing his duties as prescribed by his Church. It was the opinion which he had expressed that one wanted to see grow, and those interested in the question were looking forward to meetings of that kind, where there were scientific men, and not mere enthusiasts, to forward the cause which they had at heart—a cause which would ultimately lead to the elimination of the unfit, the propagation of the fit, and the raising to a higher level, moral, intellectual, and spiritual, of the human race.

Dr. HYSLOP said he thought that these two papers had come before the Association at a very opportune moment, because, in consequence of various reports and royal commissions, the general public was becoming alive to the fact that there were conditions which brought about degeneracy in the community, and that it must be dealt with sooner or later, first of all by education of the people; and, if that did not suffice, by legislation. He had the honour of being in the Chair at the meetings of the Neurological and Psychological Section of the British Medical Association, to which Dr. Savage had referred, and at which he read his paper. It received a full discussion, but he agreed with the author that before the Medico-Psychological Association it was likely to be dealt with much more thoroughly in discussion. Subsequently it struck him very forcibly, when giving evidence before the Commission on divorce, that divorce was not really the main question; and he thought the Chairman himself, Lord Gorell, had come to the conclusion that before inquirers could get down to the bed-rock, they must get at the conditions which regulated marriages. By the time the Divorce Commission had finished, which would probably be a year hence, there would be available a good deal of information which could be laid before the public, and which he felt almost certain would lead to a second commission, whose duty would be the consideration of reform of the conditions under which marriages were entered into. With regard to Dr. Savage's paper, before that Divorce Commission sat, he, Dr. Hyslop, mentioned the same conditions as those referred to by Dr. Savage, and agreed with what he now said as to the various conditions under which marriage should not be allowed. And he believed, for instance, that marriage should not be permitted in cases in which amorousness was a symptom of breaking down. Though it was difficult to detect, early general paralysis and the condition of early senile dements should be a bar, and under no condition should marriage be recognised as a remedy for either the male or the female. Of course, his experience was not nearly as extensive as that of Dr. Savage; but there were two classes of people who came to one for advice as to marriage. The first class were very

much afraid that the physician in question would stop the marriage, or advise against it. If one told such people they should not marry, they went away and took no notice of the advice; they wished to be married, and they were. The other class of individual came to one as a forlorn hope, trusting that one would forbid the banns. To this end they raked up all sorts of family eccentricities, and appealed to the physician for comfort and for some justification of their desire to break off the match. Later on, when the alienist physician had succeeded in educating himself, the education of the public would follow. Then came the question as to how one was to fall into line with the methods of the Church. He had had many conversations on that point, and he thought it might be taken for granted that the Church generally would be vastly relieved if they could have the responsibility of sanctioning marriages removed from their shoulders. He believed that in course of time, as happened with nearly every other movement, if the public did not act upon the knowledge they had gained, if they did not act from an eugenic point of view, or if they did things which were harmful, and even dangerous, to the community, remedial legislation would follow. He thought—though he had no authority for stating it, except as the result of conversations with members of the Church—that the Church would welcome being relieved of responsibility if a sufficient guarantee could be forthcoming from the medical faculty, either by certificate or by some other means, that such and such persons were in a fit condition to marry and propagate children. The Church would not be found to be adverse to the idea of a certificate being given before marriage. The present was a most opportune moment for the discussion of the subject, and he hoped it would be thrashed out thoroughly. Ultimately he felt sure the subject would be widened so as to include other diseases and other questions, which were shelved by the meeting of the British Medical Association because they covered too wide a field.

Dr. DONKIN said he would like to offer a few comments on Dr. Ewart's paper, and particularly his division of the subject of eugenics into positive and negative. His own opinion, which he would like to express very strongly indeed, was that the time was not yet nearly ripe, if indeed it ever would become ripe, to begin to act upon the principles of positive eugenics. By that he meant that the time had not yet come when one could think of saying, "These are the qualities shown by men and women which will be inherited, and these are the qualities which will not be inherited." But a little positive knowledge was possessed on the negative side, *i.e.*, there were certain classes of people who were obviously defective in mind or body, and in regard to which there were strong reasons for believing, if not in many cases absolute proof, that that defect would tend to be inherited; that it often was inherited, and, to the best of one's belief, it tended to be so. And the only example which he would give on that occasion was obvious mental defect, which was shown by many signs, and not merely because the person affected took up one line of action. He meant the cases of so-called congenital imbecility and feeble-mindedness. He thought that was the class of case in which detentive restriction of procreation should be undertaken. And that function should, he thought, be undertaken by the State. He was of opinion that this was the limit which existing science should sanction in any efforts to control this evil. It need be scarcely said that there was another side to the question if the State should undertake to say "These were the people who should marry and procreate, and these others should not." It was certain that if this were done by the State it would be done with imperfect knowledge. And if our knowledge on these matters became more perfect the law would not be followed. It would result in marriage being diminished, but no doubt individuals would still do as they liked, and numbers of children, healthy or unhealthy, would be propagated.

Dr. C. MERCIER said it had occurred to him in listening to the debate that in seeking to interfere by legislation with marriage and the procreation of children, members were rather in the position of persons who would mend a watch by stirring its interior with a skewer. There was not yet sufficient knowledge available on the various factors to enable members of the profession to tender trustworthy advice to the Legislature. Medical men did not yet know sufficiently accurately what qualities were hereditarily and what qualities were not. In the first place they did not know sufficiently how to discover the possession of what the Mendelians called "recessive qualities" in various people who proposed to marry; neither did they

know what effect a combination of various qualities in the parents would have upon the offspring. In fact, on that question the ignorance was many-sided and extensive; and he thought that for the profession, in the present state of its ignorance, to presume to tender advice to the Legislature as to what enactments should be made with respect to restrictions on, or as to permissions for, marriage, would be exceedingly dangerous. It was not sufficiently recognised, when restriction of procreation was spoken of, that restriction or limitation of procreation had always prevailed in every language and people, and in every age. There was no tribe of savages which did not practise restriction of families. There was no particular reason why every healthy woman who married at, say, twenty, should not have twenty children; the only barrier was voluntary restriction. It was absurd to suppose that that voluntary restriction would be stopped; it never would. And if there was to be restriction of marriage in the case of persons who appeared to be notoriously unfit to marry, then one had to face the alternative which had just been stated by Dr. Donkin, and which seemed for the moment to have been forgotten, that marriage was not an essential preliminary to procreation. It must be borne in mind that there was such a thing as illegitimacy. With regard to the duty of the physician, nothing impressed him more in Dr. Savage's address than the caution with which he stated his main propositions, a caution which was justified, he thought, by the present state of knowledge. One found that it was not those of most experience who spoke most dogmatically on that subject. It was extremely doubtful what would be the effect on the spouses and what effect would be produced on the offspring as a result of any particular marriage. With certain of Dr. Savage's dicta he would most cordially agree, and those he would strongly endorse. One of those was that marriage should never be entered into as a remedial measure. Even if it were successful it would not be justifiable, and, in fact, it practically never was successful. But when Dr. Savage came to the restriction of marriages on the ground of insanity, and the probability that such marriages would be disastrous in consequence of the subsequent insanity of the person who had been insane before contracting the marriage, then the author became exceedingly cautious and spoke only tentatively. And that was an attitude which he thought all who had had experience would endorse. He would conclude by saying that he thought any legislation on that subject, either negative or positive, would be extremely premature. He did not consider that the profession was in a position to tender advice to the Legislature; there was not yet sufficient advice available to go upon. But in matters which were exceedingly obvious, such as that feeble-minded girls at sixteen years of age should not be turned out into the streets, resulting in their becoming prostitutes, which was what occurred now, it was a case of common sense, upon which all would agree. But to say medical men could predict what marriages should be contracted, and what marriages should not be, was going much beyond their last!

Miss DENDY expressed her great appreciation of the opportunity of hearing the discussion. It was not possible to have 225 feeble-minded boys and girls and young men and women under one's care without wishing to know all that could be said about the subject. Having enjoyed the privilege of reading carefully Dr. Ewart's paper, and having seen the report of Dr. Savage's paper and heard it again, there were one or two comments which she would like to offer. With regard to insanity, she could not say she had had much experience of it, except that it was constantly found, in inquiring into family histories, that the feeble-minded had insane progenitors. The parents of a particular child may have been sane, but one or more grandparents had been in asylums. She could quite confirm what Dr. Ewart said about the difficulties of getting reliable family histories without considerable experience of the people who gave them. Only on the previous day she saw a woman who had reported her child to the school attendance officer, and who had not reported any family history of the child at all. She put it to the woman that if that little person were received into the special residential school, she would require to be detained for life, and the reply was, "Yes, I wish her to be kept; I have had too much bother with her father." "Was there trouble there, then?" "Yes, he died in an asylum, and his sister died in an asylum." A point was stretched in favour of that little girl, and she was admitted, because it was not desired that she should be added to the unhappy class to which reference had been made. Much stress had been laid upon the case of girls in this matter,

but she thought it was usual to regard the case of the boys as of less importance than it really deserved. The woman came under more notice than did the man, and that was true at every point in her career. But boys were nearly as weak and quite as mischievous; and there were three boys to every two girls. The Sandlebridge Colony began with boys, and though it started with equal accommodation for boys and girls, there was now a difference—225 altogether, of whom 86 only were girls. There was a passage in Dr. Ewart's paper on which she would like to comment: "Many of the high-grade type of feeble-mindedness are capable of earning their own living under favourable circumstances, although, perhaps, not of competing on equal terms with their normal fellow-beings"; and later, "Think for one moment of the cruel injustice which would be meted out to these unfortunate cases by locking them up for life in colonies." She thought that if Dr. Ewart had seen more feeble-minded, and fewer insane people, he would not have thought it a cruel injustice to keep those people from the stress of the streets. Weakness of will, in proper circumstances, made for morality and for happiness. She had had the great pleasure of spending three weeks with Dr. Fernald, of Waverley (State Institution for the Feeble-minded, Massachusetts), and he taught her many things. Happiness was the normal condition of the feeble-minded; they had neither remorse for what had gone, nor any apprehension concerning what might happen in the future. At Sandlebridge they built upon the weakness of the will factor. That was the fact which was common to all of them: they had practically no will-power. She had always held that if those people were so easily guided for wrong in improper circumstances, they could be equally well guided toward right in proper circumstances. Therefore Sandlebridge took such cases very early, and treated them as they wished them to go on, as good children. Many so-called moral perverts or natural criminals had been made over to the home. That was the character they came with. But she was able to say that of all who came there, only two had been of that type really. That one exception who was in the home was so weak in his will that his evil propensities could be overcome. He was now nineteen, and could be managed as if he were a baby. Many of the children had been in the home over eight years; four were over twenty-one years of age, and she could assure the meeting at their coming of age party their only conversation was as to what they should do with the farm stock in future years. They had no wish to leave, and the only inclinations and ideas which seemed to exercise them were those which were put into their heads by the responsible officials of the home. Yet there were thousands of similar people abroad in the land, who were left to take their ideas from their evil-disposed associates. Such a state of things was the height of folly. Three brothers in one family were sent to the home, their father having died in the workhouse. There were three elder brothers and one sister outside, all of the same type as the three in the home. One of the brothers and one sister married, and now had children, all of a very low type. Two other brothers had joined the ranks of the unemployed, and one of the lads in the home occasionally became restless, and said he wished to join the unemployed; that was what would occur if he left. Many such people belonged to the unemployed. She wished to be careful how she spoke of such things, because some had accused her of saying that all unemployed people were feeble-minded. There were many more such people about than was generally supposed. She herself had a list of over 3,000, and additions were pouring in day by day. But where it came home to one was that when the Royal Commission appointed Dr. Melland to make his investigation in Manchester, she gave him every assistance, and so did the Education Committee and Dr. Ashby. What any man could do in the time was done. She believed that since that investigation was made the number of such cases had been doubled, simply because the school medical officers were on the look-out for such cases, and detected them in school. It would thus be seen that it was a question which could not be allowed to go much longer without very serious action being taken. She hoped an attempt would be made to obtain some measure of relief from the Government. It was all very well for people to run homes like her own—that was kept going privately only by very hard work, and at present they had only the Government grant for the ordinary school work. What was now being done was altogether inadequate, and she hoped that all interested in the question would stand out for some part of the recommendations of the Royal Commission. If a beginning were made she hoped more would

be asked for, and that there would be a good prospect of obtaining it. With regard to the question as it concerned epileptics, she wished to speak with all deference, but it had been her experience, after having had many epileptics under her notice, that they were very often the grandchildren of epileptics, the parents themselves being normal. That seemed to her to have been a constant occurrence, as did also the occurrence of deaf-mutes in the grandchildren of feeble-minded persons. Those things were frequently met with in the histories of feeble-minded children.

Dr. FLETCHER BEACH said he rose especially for the purpose of making some remarks on the paper by Dr. Ewart, which appeared in the *Journal of Mental Science*, and which he had read with great interest, pleasure, and profit. He thought all would agree with the statement that national progress could only take place when means were taken to increase the fit and decrease the unfit. Dr. Ewart then pointed out that the proper way to decrease the unfit was to put them into permanent institutions for the feeble-minded. He, Dr. Beach, had for a long time held that cases of what was termed "moral imbecility" should be put into institutions where they could be employed, and be no longer in the position of social defects in the State, but where, on the other hand, they could lead happy lives and contribute towards their own support. And after devoting further thought to the subject, he was convinced of the fact to which Miss Dendy had alluded, that the only way in which feeble-minded cases could be treated and their numbers reduced was by putting them into permanent institutions. He had had the opportunity of visiting Miss Dendy's institution some years ago, and he was very much pleased with it. The National Association for the Feeble-minded had established a permanent home near Tonbridge in Kent. But those institutions were only drops in the ocean; it was necessary to have a large number of them established. The difficulty was how to get those institutions taken up and supported. Charity alone would not do it, and until the State could be prevailed upon to take the matter up he feared it was not likely that the requirements would be carried out as well as they should be. The important fact which had been brought before the Commission appointed to inquire into the question of the feeble-minded was that many feeble-minded girls went out of the workhouse and became mothers, their children also being imbecile. The mothers then went into the workhouse, after a time went out again, and the same thing happened over again. In that way the increase of the unfit was going along to an alarming extent. He agreed with what had been said as to the difficulty of obtaining reliable family histories. Some years ago, when he was superintendent of the Darenth Asylum, he analysed a considerable number of cases in conjunction with his friend, Dr. Shuttleworth, who was superintendent of the Royal Albert Asylum, and they both found great difficulty with the parents, who always seemed anxious to say that their children's imbecility was due, not to any congenital cause, but to something which occurred after birth, because they thought it was a stigma on themselves that it should be thought they had brought an imbecile child into the world. Dr. Ewart went on to speak in his paper about the dangers which thrifty and far-seeing members of the community ran in postponing their marriage, and, when married, in restricting the number of their offspring. He feared that that danger did exist, and Dr. Ewart admitted in his paper that it occurred; he said the better class restricted the number of their offspring, whereas people who had neurotic tendencies always begat large families. He, the speaker, did not consider himself a pessimist, but he believed that we were travelling towards a fall, and that the only way in which that fall could be arrested was for the State to interfere to prevent the unfit getting married. Dr. Ewart also said that the State might honour and reward those in all ranks of life who could produce, and did produce, healthy and able children. He, Dr. Beach, regarded that as Utopian. The State appeared to devote so little attention to the people that the remedy seemed far off.

Dr. HAYES NEWINGTON said he felt thankful to Dr. Mercier for his remarks, by means of which he had given the meeting a true lead. Dr. Mercier had warned the Association not to express anything like a definite opinion, although one would feel only too anxious to gratify Mr. Crackanthorpe after all the labour he had expended in that direction. He hoped the Association would not be beguiled into expressing an opinion, for its members did not know enough about that particular matter. Before venturing an opinion the subject should be debated, not only in meetings, but by very strong committees. It was a matter of regret to him, and, he believed, to others also, that the question of marriage and divorce, which, like

King Charles' head, turned up periodically in debate, was not dealt with in the same way. He did not forget that in that matter humanity was the subject of tremendous laws, laws which were above human laws. The law of selection was known, and it might be right in time, when more was known about the subject, to interfere with Nature. Until that knowledge was in our possession it would be very dangerous to proffer advice on the matter. If alienists looked into the matter very carefully and had more time to work up the subject, it would be found that there was considerable evidence of the ill-effects of interfering with Nature on insufficient premisses. He could call one to mind on the spur of the moment, namely, with regard to the marriages of the old days in the upper circles; how this young lady was sacrificed to the ambitions of the family, and had to marry a certain old man for his name's sake, or marry a rich stock-broker for his money's sake. Society held up its hands and was aghast at it. Some impression was made, and the young people of the day threw on one side the restraining influence of the seniors. But what had it ended in? They went to the Gaiety for their wives. Directly one set to work to try to check Nature, Nature would have its revenge and turn matters the other way. He would not desire to take up the attitude that nothing must be done; something must be done, but one must set to work in a very slow and cautious way. If he had not some suggestion in that direction he would not have risen to utter what he regarded as truisms. But Dr. Savage, in his paper, suggested that before marriage there should be a definite right to ask a definite question on each side; that one might ask the other as to the occurrence of pre-existing insanity. That was a most valuable suggestion, and was the best outcome of the whole of the talk on the subject of the direction of marriage, divorce, and eugenics. That would be a very great beginning. It might, perhaps, have an effect in the upper classes first, but it would surely extend to the lower classes; that each side should have the right to ask that question of the other; and that any suppression of the truth should form a sufficient ground for annulment of the marriage. And one would not necessarily stop at the question of insanity. One might very well, as in the case of filling up a form for life assurance, be expected to answer a series of questions. And it would be far better to start that line of inquiry, which, after all, was likely to elicit the truth, than to depend on medical certificates, which, however well given, must very often lead to exclusion of the truth, because truth was suppressed from want of knowledge. If everybody had to answer in a definite form the questions in the same spirit in which they had to answer their Maker when they made the marriage contract the effect of that must be of some value in the end; and he commended the idea to the meeting.

Dr. CARSWELL said he was sure all the members must have been much impressed by Miss Dendy's remarks. One observation which struck him very forcibly was that the feeble-minded were characterised by loss of will-power; and her description of the process which led to the contentment that prevailed in the homes indicated a tendency towards facility of mind. That he regarded as practically universally true of the feeble-minded whom one got to know in infancy and childhood. But everybody knew, who had had experience of the mentally defective who became troublesome in after life, that facility of conduct was by no means a characteristic. It was important to recognise that there was a mental defect which showed itself in only a very limited degree in infancy and childhood, which was no bar to the passing of the ordinary examination tests for mentally defective school children, but which occurred after puberty and showed itself in a certain inability to adjust himself or herself to the ordinary environment. Such people became aggressive and anti-social as well as asocial. That class of mental defectives was a very numerous one. When followed out they were found to be able to pass the third or fourth standard tests, but were able to go little further. And he had found the same characteristic in children of the richer class who had been educated in boarding schools; that there was a stunting of their intellectual capacity; and that though they could manage to go through the school without being absolute dunces, yet their capacity seemed to be arrested, and they presented during adolescence and later life many of the features of mere juvenility, along with qualities which characterised acquired criminality and other qualities which need not now be described. It was very important to keep in mind that the mentally defective—those who, in the main, had been dealt with in this discussion

—were, as shown by school examinations, of a facile type, and presented a comparatively easy problem. He used the phrase "comparatively easy problem" because Miss Dendy's closing remarks left the impression that the remedy was all a question of organisation and money. When one viewed that mass of feeble-mindedness—whether it were the feeble-mindedness of the facile type or time of life, or the feebleness of intellect which he had attempted to describe which came on, or, at least, was manifested, after puberty and in adolescence, and which was not to be confounded with dementia præcox—it was a significant fact that those who had been dealing with that mass of feeble-mindedness in the community listened with a very sympathetic ear to the suggestions which came to them from their friends who had been advocating and pushing that view of eugenics. But he confessed that the remedies which had been suggested did not appeal to him, and he wished to endorse every word which Dr. Mercier had said. He had been particularly struck with the fact that from first to last in the course of this discussion, not a single word had been heard with reference to the influence of alcoholism in the production of unfitness. He wondered what had come of that view of the causation of mental defect. It was extremely significant, this silence of those who had been speaking so strongly on the inherited influence of alcohol in producing feeble-mindedness in children, that in a discussion such as this probably no one would be found to get up and say that was the root cause of all the trouble. When one turned to the question of congenital or inherited defect, he was personally very unwilling to argue the question, because he was not sure that he could define exactly what he meant by congenital; and he was certain he could not say very much positively about inheritance. But when he faced the children whom he had to examine, and the adolescents who came his way, he was struck with the fact that the element of inheritance and congenital defect did not appeal to him. He rarely traced the characteristics which were seen manifested in the children to the parents of those children; and when one did get a positive history of real insanity or a positive history of actual mental defect—and in rare instances one had seen a case in which there was a history of that very limited and curious defect, word-blindness or letter-blindness—it was a rare event, for frequently one could find no correspondence between the mental condition of the feeble-minded child and the mental condition of its parents. Yet it was the commonest occurrence for mentally defective children to have brothers and sisters in the same school who were quite bright and intelligent. No man who had experience of these cases would say that congenital influences and the transmission of inherited qualities were elements which could be disregarded in this question, and he was very far from saying that. But a matter which had not been so far mentioned that day was that there was some fault or failure or accident in the developmental process of the child, either intra-uterine or occurring after birth. That seemed, when one considered each case by itself, to be, if an unknown and undetermined, at least a tangible influence in the production of mental defect. Therefore he would say that the profession was very far from being in a position positively to say anything which would be of the slightest value to the Legislature on the question of the transmission of qualities from parent to offspring. They were of course aware that the children of neuropathics who became insane and the epileptic and the deaf-mutes ran very parallel; but one was frequently surprised to find that even the children of those people were normal, and apparently were able to live out a normal life. While he listened with great eagerness and great sympathy, in the hope of getting light and leading from this new inquiry, which had been called eugenics, he had to say that, based upon his own experience, the profession was only in the stage of listening with great respect to what was advanced, willing to gather their material together and see whether some common ground of understanding could be arrived at. He wished to point out the following consideration: If it had been proposed fifty years ago that no person in whose family history there was marked evidence of tubercular taint or phthisis should be allowed to marry, probably that proposition would have met with universal acceptance, because at that time it was considered that the one element in the production of phthisis was the inherited or congenital quality. And yet in fifty years' time the phthisis death-rate had been reduced by 50 *per cent.* without interfering with the arrangements with regard to marriage. And it had been discovered that, even in spite of the fact that it must be admitted there was a

tubercular diathesis which might be transmissible, the profession were in the past neglecting the environmental conditions. He submitted that although the environmental conditions of the really feeble-minded and the insane were as yet imperfectly understood, there was a great field for investigation, for inquiry, and for work in that domain. He wished to make one more remark germane to the present discussion, namely, that wherever one moved among the working classes in large industrial centres, one never, by any chance, heard the suggestion made that there should be divorce on account of insanity; working people did not think an unbalanced mind should be a ground for divorce. He regarded that as a significant fact, and it was one which the Legislature should pay great attention to, particularly because those people had votes; moreover, the people determined the subjects which the Legislature would turn their attention to. This was not a live subject to the working classes, who did not seem eager that the State should make legal provision for the divorcement of insane couples. He could not help feeling that in this latter connection—its connection with insanity—the word "divorce" was an unfortunate one. He was quite prepared to speak on the whole subject with a perfectly frank and open mind, but divorce had come to have a specific meaning attached to it, that meaning being one which suggested what our modern master of phrases would call "moral turpitude." He regarded it as unfortunate that those who had to take care of the insane, and who had to sympathise with the insane, to protect their interests and look to their future, who were their friends in the last resort, should add to the misunderstanding and the burden which the insane had already to bear by lending any countenance to the suggestion that insanity might be a ground of divorce. Annulment of marriage was recognised at present by law, and that was all which could be done at present. If in connection with insanity and the dissolution of the marriage tie the word "annulment" were used instead of "divorce," it would have a much less objectionable flavour.

Dr. BRISCOE remarked that "*Raro quisquam non aliquam partem corporis imbecillam habet*" was written in the days of the Emperor Tiberius (*Celsus*, Book I), and he commended that passage to some of his friends with regard to this question. He had no right to prolong the discussion after so much had been said by others, but the study of human breeding was full of pitfalls, especially the diseases thereof. The "canker worm" had often been discussed, not only in that Society, but at the medical societies in London. Before attempting to teach the public how to marry properly they must at first make the "canker worm" of disease notifiable, for undoubtedly syphilis spoiled the genealogical table of inheritance, not only physically, but also mentally considered. In the preface of *Celsus* occurred the following: "*Verique simile est inter nulla auxilia adversa valetudinis plerumque tamen eam bonam contigisse ad bonos mores, quos neque desidia neque luxuria vitiaut: siquidem hæc duo corpora prius in Græciâ deinde apud nos affligerunt.*" He asked, Were not these two vices the prevailing cause of disease at the present day? Thus, to specialise on diseases would also mean specialising on the physical symptoms generally. *Celsus* further said, "*Ideoque vis corporis melius ex venis quam ex ipsa specie æstimatur.*" He would therefore like to propose that the President, during his year of office, should institute within the Association a collective investigation for the consideration of the question of the forms of insanity which were transmitted. There should be a clear plan for the Legislature to act upon, and forms could be filled up according to the nomenclature of the Association. Such a subject would require much thought and consideration on the part of the President and those who would act with him, but he thought some facts might be collected which could be crystallised and placed before the world at large. The leading daily papers had so much each day on the subject of divorce that it grated on him considerably. After all, marriage must be looked upon as a religious ceremony, and in talking about what was usually meant by marriage he preferred to use the term "human breeding." The report of such committee as he suggested could be drawn up on the principle of diseases like cancer and tuberculosis, which were dealt with by the Medical Society of London many years ago, in which he believed Mr. Butlin took a leading part. A considerable amount of valuable material was collected in that way. If each member would take the trouble to give his time to the investigation of one family the nett result would be a very useful compilation. He could trace back one family in regard to insanity in the great-great-grandfather, to a grandmother

who had puerperal mania, and to the birth of a child, after which the mother died from acute delirious mania. Her child married and she had puerperal mania, and when she married her husband was syphilitic. He himself attended the syphilitic man, and, remembering the circumstances, he said, "Take my advice, and do not get married." But he did marry the woman from a very insane family, and that marriage produced a son, whom he constantly saw. That son spent money freely, and was now engaged to be married. While the mother was carrying this child she was under mercurial inunctions and potassium iodide, and when the child was born there was no superficial evidence of congenital syphilis about him. If that kind of thing could be crystallised down, much would be done towards getting exact information.

Dr. BEVERIDGE SPENCE said he would like to say a word on behalf of a class in which he had been much interested during forty years. He commenced his work amongst the insane at Earlswood, where he had to do with many unfortunate weak-minded people, who were cared for in the most generous fashion, and, he regretted, without assistance from the State. The debate that day appeared to have divided itself into two parts, notwithstanding that it had been the intention of the President that the subjects of the two papers should be taken together. In the first place there had been the consideration of marriage and divorce, and in the second the consideration of the treatment of the weak-minded. From the point of view of marriage and divorce he was in agreement with Dr. Mercier and Dr. Hayes Newington that the profession had not yet sufficient data in its possession to go upon, nor to say what were the views of the Association on the matter. But when it was a question of the treatment of the feeble-minded he thought the Association might very well support the efforts which were being made by Miss Dendy and those who worked with her on the same lines, by calling upon the State to do something for the feeble-minded, even to the extent of asking for a State grant, in the same way as the State assisted in the education of the child who was not sufficiently advanced or capable for the ordinary elementary school. He quite saw that if one waited until the time arrived when all defective children who might propagate their species and produce their like could be isolated it would be a long time hence. But he thought a beginning might well be made, and it might be the duty of the Association to give a lead, and endeavour to induce the Legislature, or the Chancellor of the Exchequer, to make some allowance for the maintenance of such feeble-minded children, in the same way that a grant is now made for a similar class in county lunatic asylums and similar institutions.

Dr. EDEN PAUL said he took it that most of the members were agreed that to advise, as an Association, for legislation in the eugenic direction would be premature, because there was not sufficient knowledge available. But as a profession they could at least use what influence they possessed to promote the diffusion of sound eugenic conceptions. To fold their hands and say, "We have no knowledge," would be a mistake. The profession had as much influence as it deserved to have, though perhaps not so much as it would like to have. It was certain it had some influence. Medical men did not know precisely what marriages would produce feeble-minded children, nor precisely what marriages would not; but, as Dr. Savage had insisted, there were certain elements of knowledge available, and Dr. Savage was not as guarded on all points as Dr. Mercier suggested he was. For example, he said that people who were epileptics and had any indication of mental disorder certainly should not marry. As such marriages were so disastrous, the profession could use its influence to spread the idea that there should be something in the nature of a dossier; a clean personal and family history should be the pre-requisite to any sane marriage. That was not a matter for legislation but for public opinion; and the growth of opinion of that kind would largely depend on what was done by the profession. People often spoke about Nature without realising the enormous force exerted by opinion in modifying Nature. He would give one example in illustration of that. In several of the ancient civilisations, the Egyptian among others, it was considered right and natural, at any rate amongst members of the royal family, for brother to marry sister. But with us at this time such a union was so beyond our conception that the question of sexual affection between brother and sister never entered our heads. That was simply due to the growth of education and of public opinion. In that way a profound influence could be exerted. And if the profession were to

use its influence to promote the idea that marriage should not be undertaken without a disclosure of details affecting the personal and family history, such knowledge being shown to influence the future progeny, and that unsuitable unions were likely to result in unsuitable progeny, much would be done to promote the growth of public opinion in the right direction.

Dr. GREENLEES said he thought the time had come when it was the duty of the profession not only to educate the public, but likewise to educate the Legislature. But that was not so if the Association consisted of such ignorant members as had been alleged. That, however, was not his opinion; he did not think it had ignorant members, but that it consisted of most scientific and capable men, who knew the subject. It was therefore the body to which the Legislature should look if it wanted any information at all. The public had been educated by it during the last seventy years; surely the time had now come when something more should be done. If he were in order, he would like to suggest that the matter be referred to the Parliamentary Committee of the Association, and that they be asked to consider it, and make a collective investigation, so that there should be some material to go upon.

The PRESIDENT said that before he asked Dr. Ewart to reply on the discussion he would like to propose a hearty vote of thanks to those visitors who had so kindly come to the meeting to take part in the discussion: he referred to Mr. Crackenthorpe, Miss Dendy, and Dr. Donkin, and for the interesting contributions they had given on subjects with which they, of all people, were most familiar. It had been his intention—he understood it was usual for the President of the Association on such an occasion to do so—to add something to the debate. But he found that every idea he could possibly have thought of had already been taken up by one or other of the speakers. Therefore, he believed that any remarks he might have to offer would not substantially add to what had already been said. He could not help being struck by the way in which each speaker shied off from the proposition of positive eugenics, and to what a degree the subject introduced by Dr. Ewart had been, either fortunately or unfortunately, left undiscussed. He could not agree with Dr. Greenlees that the action of the speakers and the line they took was an assumed ignorance of the subject. He thought it had been a confession of a very real ignorance, in which he, the President, participated. He did not think that in this country, in Europe, or in the world there had been any material contribution to biology as a science since the days of Darwin. Herbert Spencer and many others had contributed philosophical criticisms, but without any very material accession to biological knowledge as a whole. One branch, however, of biology had been carefully studied, namely, embryology. Failing the rising up of some great leader in the field of biology who would instruct the present generation, or collect together all the knowledge which was scattered abroad, he thought they were right in withholding a definite decision upon such an important subject as actually dealing with the defective and insane in a positive manner, or in such a positive manner as Dr. Ewart had suggested, along with those of his school. In saying that, he entirely agreed with what Dr. Mercier said about the necessity for regarding that question, not so much from the standpoint of the suppression and isolation of the degenerate, as from the point of view of maintaining public order and decency. He thought all must admit with considerable humiliation that we had not by any means attained as a State to the efficiency reached by some of our neighbours in that respect. He referred particularly to Germany. Until that had been done, until, at any rate, something had been accomplished along the lines of what was done, for example, in regard to consumption, it could not be said that everything had been exhausted before adopting the extreme measure of sterilisation, for which we were unprepared, because so little that was exact was known. But in making those remarks he had wandered far from the point which was in his mind when he rose, namely, to ask the meeting to accord its thanks to the visitors who had kindly attended to discuss the matter.

The thanks were accorded by acclamation.

Dr. Savage having been obliged to leave, the President called upon Dr. Ewart to reply.

Dr. EWART, in replying, said the paper under discussion was written with two objects in view: First, that it should invite discussion before the Medico-Psycho-

logical Association; secondly, in the hope that the collective wisdom of that body might evolve a practical scheme whereby a polluting stream might be dammed and great good thus accrue to the national health. Lepers and those affected with plague are segregated for the good of the community, and why should not those suffering from feeble-mindedness, which is really much more dangerous? If a race is healthy, vigorous, and successful, the best citizens are those who approach the average. They would have well-balanced nervous organisations, and they would hand on the same characteristics to their offspring, for if physical strength is transmitted, so must mental strength. These men would be more useful than geniuses who are individuals with a disproportionate development of some particular faculty, leading to a disturbance of mental equilibrium, psychopathic phenomena, and emotional spasm. Can such be designated as Nature's finest handiwork? And whoever has heard of a genius being produced from an idiot or imbecile? These remarks are made because it is evidently the belief of some that by segregating the feeble-minded you will produce nothing but mediocrities. I am not touching the question of the "insane." Another important point to remember is the "transmutation of disease," which means that diseased organisms are apt to breed disease, but not always, though sometimes, their own disease. An alcoholic parent may have an epileptic child; a tubercular mother may have a child with Pott's disease; a man with syphilis may have a son afflicted with general paralysis; convulsions in one generation may be represented by hysteria; a neuropathic patient may have a psychopathic descendant. As to the methods to be adopted, the best might be the notification of these ailments by the medical officers attached to the different schools to the asylums' committee of the county. They would then be certified before a magistrate and sent to some colony until the age of twenty-one, when they would again be examined, and a decision arrived at as to whether they should be allowed into the outer world, be segregated for life, or given the alternative of sterilisation. The rich should be notified as well as the poor, and they might be allowed to create private colonies. There is a large number of paupers receiving outdoor relief who are feeble-minded, and these could be weeded out by the medical officers of the workhouses and segregated for life. The habitual criminal, the "mental alcoholic," and the juvenile feeble-minded offender could be dealt with in a similar manner, these sections being carefully classified and sent to separate colonies. The crux of the whole question is this: Are the unfit producing children at the rate of seven per family and the fit at the rate of three? If so, it is not necessary to be a first class prophet to prophesy the result in the course of a few generations, especially as by State and private philanthropy the action of natural selection is stayed. As to heredity, it must be admitted by all that our start in life is no haphazard affair, but is rigorously determined by our parentage; it binds one generation to another, and its law is that "like tends to beget like." Grapes do not grow on thorns nor figs on thistles. Would anyone knowingly select either diseased seeds or diseased animals to breed from?

Clinical Notes and Cases.

Case of Melanotic Alveolar Sarcoma of Liver, Characterised by Rapidity of Growth and Abnormal Weight⁽¹⁾. By EDWARD D. O'NEILL, M.R.C.P.I., Medical Superintendent, Limerick District Lunatic Asylum.

M. D—, æt. 30, servant, was admitted to the Limerick Asylum on April 28th, 1910, from the Limerick Prison, suffering from recurrent mania with delusions. This woman was tried at the Connaught Winter Assizes, held in Limerick in December, 1909, for the manslaughter of

her illegitimate infant by throwing it into the fire, and was sentenced to nine calendar months' imprisonment with hard labour.

T. C—, "a witness at the trial," stated that on the night of September 28th, 1909, about 10 o'clock, he heard a baby crying, and on going into the kitchen he saw the child on the fire. Witness pulled the accused aside and snatched the infant out of the fire, and in doing so the prisoner jumped on his hands. She alleged that her cousin was the father of the child, and that it had accidentally fallen into the fire, that she got it out at once, wrapped some clothes around it, and walked seven miles to see a doctor.

No medical evidence as to the prisoner's mental condition was produced at the trial. She was always considered by her people and neighbours as weak-minded.

From the time of her committal up to April 24th, 1910, she was quiet and gave no trouble, but constantly complained of a pain in her head, and was almost daily brought under the notice of the doctor.

On April 26th I was asked by Dr. M'Grath, Surgeon of the Prison, to see her as she had been restless and excited for fourteen hours. On examining her she told me that she had just been married to her cousin (who came in through the window during the night) by the Chaplain; she was certified as of unsound mind. The poor woman was in a wretched condition, her face being sallow, anxious, and drawn.

On admission to the Asylum she was quiet, appeared in a half-dazed condition, and had the same delusions about being married in the Prison.

She continued in this state for some time, and was quite amenable to any orders given to her.

Early in June she was sent to hospital complaining of a pain in the lower region of the abdomen; on examination a hard swelling was found over the uterus, but there was no vaginal discharge. Suitable treatment was ordered, she was kept in bed, but the tumour increased rapidly, accompanied with pain and prostration.

During July there was no improvement, the tumour rapidly increasing. It was now quite evident that the tumour was in connection with the liver; the swelling supposed to be connected with the uterus was the lower lobe of the liver, which had extended down almost to the pubis. The case was diagnosed as carcinoma of the liver.

About the middle of July I went on leave, and did not see her again until August 7th, when I found the liver enormously enlarged, filling almost the whole of the abdominal cavity, and its surface studded with nodules. The abdomen was very much distended, and ascites had set in. Temperature 100° F., pulse weak and quick, respiration increased, but not much difficulty in breathing. She did not complain of much pain. The urine was dark in colour, and as she was suffering from jaundice this was looked on as indicating the presence of bile. It was examined on several occasions and found to contain a considerable amount of albumen; the presence of melanin was not suspected. She continued in this condition, gradually getting weaker, until September 11th, when she complained of severe pain about the region of the heart and difficulty of breathing, due evidently to displacement of the diaphragm. Ordered stimulants and morphia hypodermically.

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September 13th.—Much worse; tumour daily enlarging, increased pain about heart, very restless, rapid respiration, breathing difficult and inclination to vomit. Ordered stimulants and morphia.

September 15th.—Gradually getting weaker, vomiting, pulse very weak and rapid. Stimulants increased, morphia hypodermically.

September 16th.—Sinking, ascites increased, heart's action very weak; she was almost unable to take any nourishment.

September 17th.—Died this morning.

Post-mortem.—The body was very much emaciated, shrivelled up, and yellow in appearance.

On opening the abdomen there was found a large quantity of fluid, and the liver filled up almost the whole cavity.

The liver was enormously enlarged, and covered with nodules, which grew in every direction, and projected out as hard growths. These nodules were about two inches in diameter and were more numerous on the under surface. The peritoneum was very much thickened and quite adherent to the upper surface of the liver. The gall-bladder was very much enlarged, being three times as big as in the normal condition, and contained a good deal of fluid, but there was no appearance of gall-stones. The coats were very much thickened and very vascular. The portal fissure was surrounded by nodules.

The hepatic tissue was of a yellow colour, and blotched in some places by hæmorrhages.

Some of the nodules were broken down in the centre and had the appearance of granular matter. The heart was very small. Right lung was pressed on by liver and quite atrophied, being about one-fourth of the normal size. Left lung, stomach, omentum, pancreas, uterus and kidneys were normal, and no signs of nodules were noticed in any of these organs. Weight of liver 22 lb., length 19½ in., width 19 in., and circumference 36 in.

I sent two pieces of the liver (one from the upper surface, the other containing a large nodule from the under surface) to Prof. McWeeney for microscopic examination, and he reported as follows: "The liver tissue is closely packed with dark brown nodules, both on its surface and throughout its substance.

"The nodules vary (in the pieces sent) from a pin's head in size to that of a cherry.

"On section the nodules are seen with the microscope to consist of peculiar-looking ovoid or spindle-cells, each containing a large nucleus and lying in parallel rows. These cells are grouped together in alveoli of various sizes, each alveolus being surrounded by a thin layer of connective tissue.

"Many of the cells contain amorphous, granular, brownish, or dark-yellowish pigment, and this is also found in elongated fibro-plastic cells contained in the septa. The tumour-cells are undoubtedly of connective-tissue or mesoblastic type, and the tumour is therefore to be named a 'melanotic alveolar sarcoma.' It is doubtless secondary to a tumour either of the choroid or of the skin."

As primary melanotic sarcoma of liver is of very rare occurrence, Prof. McWeeney considers that the disease was secondary to a tumour either of the choroid or of the skin, in which opinion he is supported



FIG. 1.

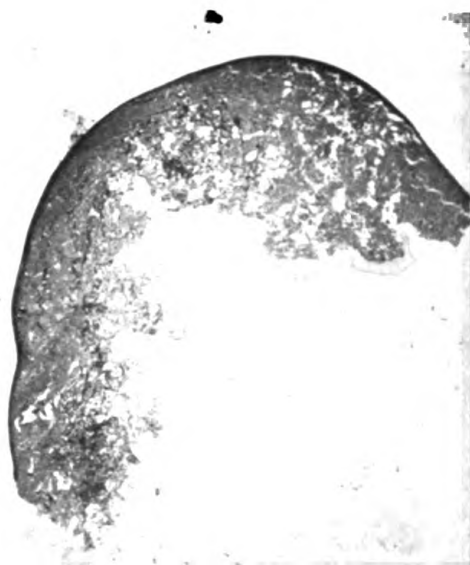


FIG. 2.



FIG. 3.

To illustrate Dr. O'NEILL's paper.

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by the views of Rolleston (1), who has strong doubts on the existence of primary melanotic sarcoma in the liver.

Eve (2) draws attention to the following points in connection with this disease: It may occur in the skin, matrix of the nail, or certain muco-cutaneous surfaces (the labia, the penis, the eyelid, and the anus), on mucous membranes, as the palate, inner surface of the cheek, in the eye, and in certain rare situations, such as the ovary and the epididymis.

The growths are, however, most common in the skin and eye. The majority of cases occur after fifty years of age. The tendency to formation of secondary growths in the liver does not appear to be so great in the melano-sarcoma of the skin as in the primary melanosis of the eye, nor is the excretion of melanin in the urine so frequent. After excision of the eye in this disease no further symptoms may be noticed for long periods, and then death may follow with clinical manifestations of secondary growths in the liver, and the eye trouble may excite so little attention that a patient may be admitted to hospital for a large liver and ascites, the intra-ocular tumour being unsuspected until the *post-mortem* examination. In this case the skin showed no signs of disease, but the sight of the left eye was impaired and the appearance was that of a chronic ulcer of the cornea, accompanied with shrinkage of the eye-ball.

The case is one of great interest, as it showed the entire absence of the physical signs and pressure symptoms pointing to such an enormous tumour pressing on the right lung, heart, and abdominal viscera. The rapidity of growth, abnormal weight, and almost complete absence of severe pain up to some days before her death, are also points of interest; but the latter fact is not to be wondered at, as the insane often suffer intense pain without murmuring.

Taking into consideration the general symptoms, the *post-mortem*, and microscopic results, the inference to be drawn strongly favours the assumption that the case was undoubtedly one of secondary alveolar sarcoma having its primary origin in the choroid.

(1) A paper read at the meeting of the Irish Division, held at the Royal College of Physicians, Kildare Street, Dublin, on November 5th, 1910.

REFERENCES.

- (1) *Diseases of Liver, Gall-bladder, and Bile-ducts*, 1905.
- (2) *The Practitioner*, February, 1903.

Two Cases of Hysteria, Treated by Suggestion, with an Account of some Experiments in Hypnotism. By J. E. MIDDLEMISS, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Gartloch Mental Hospital.

ONE of the subjects of the following remarks, J. R—, was shown at the Spring Meeting of the Scottish Branch of the Medico-Psychological Association, held at Gartloch Asylum in March, 1910. This case is reported in the *Journal of Mental Science* for July of that year. The other patient, J. S—, came under my care in May, 1910, and his history is so far unrecorded. As there are many points of similarity in the two cases, it will save time to describe them together in so far as they resemble one another, and then later to indicate the differences between the two.

First, then, they are both young men, the one, J. R—, æt. 19 at the present time, and the other, J. S—, æt. 22. They have both been the subjects of convulsive fits for a number of years, the younger, J. R—, starting at sixteen years of age and the elder, J. S—, at fourteen. The fits have been proved pretty conclusively to be hysterical in nature, although in one case the diagnosis of hysteria was not made for some considerable time. In both cases there have been periods of complete intermission in the fits, according to the history as given by the patients themselves, and this for a period of months at a time. Moreover, there is a certain similarity in the character of the fits in the two cases. Whilst being convulsive in nature, they do not exhibit the typical stages of an epileptic fit. The movements are more irregular, violent, bizarre, and erratic than in ordinary epilepsy. They have the appearance of being not altogether involuntary; there is a state of altered consciousness but no absolute loss of consciousness, no loss of control of the bladder or rectum, no tongue-biting, and in neither case has the patient sustained any injury during the fits. In one case there is often epistaxis during the fit, and this without external injury. Most striking of all, however, is the fact that in both cases the incidence of the fits is easily modified and affected by environment and external circumstances in a way, and to an extent, which never occurs in true epilepsy. Furthermore, areas of anæsthesia, hyperæsthesia, and analgesia have been demonstrated on the bodies of both patients. Here I might say that I should have preferred to take the diagnosis for granted, but it seemed preferable to detail the symptoms to some extent in order to demonstrate convincingly the undoubted hysterical basis of the condition in each case. Apart from the actual symptoms of disease there is a certain correspondence and similarity of temperament and constitution. They are both what one would describe as "nervous," sensitive subjects. They respond acutely to every fluctuation and variation in their environment, and there is in both of them that tremulousness in manner and hesitancy of speech which is so character-

istic of, and so frequently associated with, the neuropathic temperament. In one case, that of J. R—, the patient is quite tongue-tied at times, and simply cannot answer a question at all until one looks away or otherwise ignores him. Furthermore, they are both bright intelligent youths, and soon made themselves acquainted with the work and routine of the wards, and became valuable assistants to the nursing staff. After only a very short acquaintance with them it became manifest that if their seizures were contingent and dependent upon impressions of a depressing and adverse nature, it was equally true that the same factor of impressionability could be utilised for their mitigation and possibly their cure. For instance, the elder of the two, J. S—, soon after his admission to the hospital exhibited fits of such a violent and terrifying nature that two strong attendants found it no easy matter to hold the patient in bed and prevent him hurting himself. On one occasion in particular on which Dr. W. A. Parker and myself had gone into the ward in order to investigate the character of the seizures there was a temporary interval in the fits. We were just on the point of leaving the ward when suddenly and without the slightest warning the patient made a curious salmon-like leap clean out of the bed and landed with an ominous thud on the floor, some feet from the bed-side, and this, too, without sustaining any visible injury. It would be difficult to describe the exact mechanism of such an act, but it was quite unlike anything I have ever seen, and recalled more the muscular dexterity of a professional gymnast than anything else.

It seemed almost to be a sort of retort and dramatic sequel to our attitude of expectancy, which presumably was perfectly patent to the patient in spite of his apparent inattention. On another occasion, after a series of violent seizures during which he had to be forcibly restrained, I endeavoured to engage the patient in conversation, and succeeded in fixing his attention for some twenty minutes or so, during and after which he had no more fits. As a result of this and other similar experiences it was resolved to adopt an attitude, not of indifference, but such as at least to avoid anything which might encourage or "suggest" the onset of fits. This, combined with a system of what I might best describe as "mental counter-irritation," was pursued for several months, and has been fraught with the most gratifying results. By "mental counter-irritation" I mean the employment of the patient in unfatiguing work, and the enjoyment of congenial recreation. For a very short time he was given bromide of potash in fairly large doses (gr. xx *t.d.s.*), but this was soon stopped, and his malady has not been treated medicinally since that time.

Hitherto I have taken these two cases together and have dwelt upon their essential and generic similarity. Now, I propose to accentuate certain individual differences in character and temperament, the bearing of which will be more obvious from my later remarks.

To begin with, the younger patient, J. R—, is much more emotional than J. S—, and responds in a more lively manner to changes in his surroundings. Again, although he is fairly intelligent he is decidedly childish in his manner. The patient J. S—, on the other hand, is, to outward appearance at any rate, more impassive than the other. He is not subject to the emotional storms which beset

J. R—, nor does he vibrate so sensitively to every trivial variation in his environment. Another important difference is that he is much more developed mentally, is not tongue-tied, but is straightforward and direct in his manner and address. He is able to give a name to his symptoms, to say what he considers is good or bad for him, and is capable of a degree of self-analysis which is totally lacking in the younger boy; so much so that he has helped me considerably in elucidating his own case, and especially in certain experiments and lines of investigation which I now propose to describe. The above represents briefly the line of treatment which has been adopted in each of these cases. What I have now to say relates to certain experiments in hypnosis which were carried out concurrently with the above treatment.

We will take the case of J. R— (the younger patient) first. The experiments which were conducted in his case extended through the period between September 17th, 1909, and the end of August, 1910, but they were not carried out steadily throughout the whole of this period. From the first there was little or no difficulty in inducing hypnosis. The patient was asked to gaze at my two fingers, which were held before his face a little above the eye-level and at such a distance that he was obliged to converge his eyes in order to focus the object. Soon his eyes tired and I closed them. He seemed to go off into a light sleep on the very first occasion. On subsequent occasions "sleep" was more easily induced, and in time he seemed to understand what was required of him and would quickly go off into a heavy "sleep" after gazing into my eyes. For a short time, too, other manœuvres were employed, such as stroking the forehead and the scalp, compressing the temples, etc., and these were used in a purely empirical manner as they seemed to deepen the "sleep." In the early experiments when he was spoken to during the sleep he would waken up suddenly with a start. He was then directed to pay attention to what was said to him, but to remain asleep. He soon became educated up to this point, and whilst in this condition was given various commands to carry out subsequently whilst in the waking state. These consisted chiefly in orders to waken at a certain fixed and definite time. The time was always chosen so as to avoid the hour, the half-hour or the quarter; he had no access to watch or clock and was in a room by himself. The nurse on duty was instructed to note carefully and faithfully the exact time at which he arose, and he himself was ordered to get up at the time appointed, go out into the ward, report himself to the nurse, and ask her to note the time of his rising. Many different nurses were enlisted in the service, the experiments were performed over and over again, and every precaution was employed against fallacies and deception which human scepticism could suggest, and the results were as follows: Sometimes he omitted to carry out the order altogether; on other occasions he carried it out, but not at the proper time, *but on the great majority of occasions he carried it out within five minutes of the time specified, and on very many occasions exactly to the minute.* His punctuality in this respect, from being at first astonishing, gradually became amusing, and later on so ordinary and *banal* an incident as to excite no comment. I should like to emphasise this point a little.

The patient J. R.—possessed the faculty of estimating time to a degree which is remarkable. I have collected at least eight instances where he woke up at the appointed time and reported himself to the nurse *punctually to the minute*. On other occasions he would be requested to do a certain thing at a fixed time next day, whilst in the waking state. A few minutes before the appointed time he would have no recollection whatever of the order, and then suddenly, without looking at the clock, he would stop in the middle of his work possibly and proceed to carry out the order as arranged. One is reminded of the faculty most of us possess of waking approximately at any hour we have fixed upon before going to sleep. Presumably J. R.—'s facility in this direction is only an unusual development of a power we all of us have in some degree.

Afterwards I proceeded to vary the monotony, and to modify the experiments to some extent. It will, perhaps, be more convincing and give one a more vivid impression if I give a concrete instance or two of what occurred. For example, on October 28th, 1909, at 8 p.m., the patient was put to sleep. I then asked him to listen to what Nurse D— said to him, but to forget afterwards that she had spoken to him. She (Nurse D—) then told him, among other things, to come to see her on November 3rd (six days later), at 3.30 p.m., and ask her for a pair of new slippers. On being questioned next day he had no recollection whatever of the order. Subsequently, on November 2nd, I asked him, whilst in the waking state, what Nurse D— had told him to do last week whilst he was asleep, and he was unable to tell me the whole of it. I then put him to sleep, and *he remembered the whole of it, including the injunction to come to her on November 3rd and ask for new shoes*. On November 3rd, at half-past three o'clock exactly, he came from his work to the ward, and asked Nurse D— for a pair of new shoes. When questioned about it he said he was looking at the clock about 3.20 p.m. and suddenly remembered the order. My commentary note at the time was, "This seems to be an authentic instance of a post-hypnotic command being carried out with complete amnesia in the intervening period, except whilst in the hypnotic state." The substitution of the word "shoes" for "slippers" was the only inaccuracy.

Another interesting experiment was carried out as follows: On April 29th, 1910, about 4.15 p.m., I opened and scraped a small sebaceous cyst at the back of this patient's ear. Just before the small operation the cyst (which was commencing to suppurate) was examined. It was then distinctly tender to the touch, and the patient winced slightly whilst it was being handled. He was "put to sleep," however, in the usual way, and told several times whilst asleep that he would feel no pain whatever, and that he must remain asleep until I aroused him myself. I then opened the cyst in the presence of the assistant-matron and the charge nurse, evacuated the contents, and scraped away the lining with a sharp spoon. He never once opened his eyes or seemed to feel the pain—and I was fairly vigorous in my manipulations—but occasionally he made a long sighing inspiration. This was all. The whole operation was carried out effectually, the ear was dressed, and the head was bandaged, and to all intents and purposes the patient might have been in a condition of deep narcosis. Later he was told

to remain asleep until the nurse aroused him, but it was difficult to rouse him up sufficiently to understand the order. Eventually he awoke spontaneously about 5.25 p.m. and came out of his room. Questioned by the charge-nurse, it was found that he had no recollection whatever of the operation, and he appeared considerably surprised to find his head in bandages.

The experiments which were carried out in the case of J. S—, and which are now to be recorded, are perhaps more instructive and interesting than those hitherto described, in that the patient was possessed of a power of description and of self-criticism which was lacking in the other case. He soon learnt to fall asleep, and always kept his eyes widely opened and fixed on mine. He never winked or moved his eyelids, but after a few minutes' steady gaze the eyes closed suddenly as if fatigued, and almost simultaneously he dropped off into a sleep. At first the patient was put to sleep in a chair, and as he went off his head fell to one side, the muscles of the limbs became relaxed, the whole body became inert and flaccid, and the breathing became deep and regular, and exactly like that of a natural sleep, so that it was quite easy to carry him to the bed.

He soon got into the way of answering questions without awaking, or, in other words, I soon established a "*rapport*" between us. Here, too, there was a point of difference between this patient and J. R—. The latter was always roused with difficulty and could hardly be persuaded to take any notice of me. Not only so, but he became irritated on being spoken to, and answered somewhat testily, in a loud voice, and as if very loth to be disturbed. The patient J. S—, on the other hand, never seemed to be so "inaccessible," answered almost immediately and in a pleasant voice, and even acquired the habit of answering by a nod or a shake of the head. (When I gave a patient an order I generally asked him to notify whether he heard me or not—hence my eliciting the difference.)

On July 21st, 1910, at 8 p.m., J. S— was put to sleep in a chair, and then transferred to a bed and given the following orders:

(1) To awake at 10.30 p.m. the same night and report himself to the nurse.

(2) To ask the charge-nurse at 9 a.m. next morning (July 22nd) for some notepaper to write a letter to me.

It transpired later that the patient awoke at 10.20 p.m. (*i.e.*, ten minutes earlier than ordered) and reported himself to the nurse, asking her what time it was. He also asked the nurse for notepaper next morning at 9 a.m. She was busy at the time and did not give him the notepaper until 9.10 a.m., about. He then wrote me a letter, as ordered, chiefly dealing with his removal to another ward. When questioned next morning (July 22nd) as to what I had told him the night before, he had no recollection of it whatsoever and could tell me nothing, nor did he remember anyone being in his room whilst he was asleep, though, as a matter of fact, another patient was in for some considerable time. He evidently did not attribute the desire to write a letter to me at all, and carried the order out in detail. It should be mentioned that the nurse knew nothing whatever about the order I gave him, so that she was quite unprepared and her information was necessarily unbiassed.

On another occasion (on July 22nd) he was told during the hypnotic sleep to go across to another ward next day at 11 a.m. and ask the charge-attendant for the *Strand Magazine*. He was then to tear out page 655 and give it to the attendant, who was not informed about the order, to keep for me. The account of what happened as given to the nurse was as follows: "At 11.25 a.m., or thereabouts, J. S— came and asked if I would let him through to the Admission Ward, as he wanted to ask the charge-attendant for the *Strand Magazine*, to tear out page 655 and give it to him. I asked him if he was told to do so; he said he couldn't remember, but supposed that it must have been a made-up thing, as the magazine was locked up and usually it was left lying about." (As he had previously been an inmate of this ward he was acquainted with what went on there.) On this, as on other similar occasions, he did not remember my giving him the order, but seemed to reason that as I was in the habit of giving him orders, I had in all probability given him this particular one.

The following is an example of a command carried out during the hypnotic sleep. On August 2nd, 1910, I put J. S— to sleep and told him that he must not be awakened by anyone speaking to him excepting Nurse C—, and if she should speak to him he must awake immediately. Afterwards three other nurses went in separately and spoke to him. One of them, Nurse M—, spoke to him and shook him, and nearly succeeded in waking him, but he went off to sleep again. When Nurse C— spoke to him he moved his head, and on her repeating it he gradually awoke. On being questioned it was found that he had no recollection of the other nurses having been in his room. On such occasions as this it was amusing and quite convincing to see the look of surprise and absolute incredulity with which he heard that other people had actually been in the room and had spoken to him.

I now come to one of the most interesting of the experiments which were performed. On August 17th, whilst asleep, he was given the following order: On August 24th (exactly a week later) he must go to the neighbouring village of N—, about two miles away, and buy the following articles: $\frac{1}{2}$ lb. of sweets, one tin of black boot-polish at 3d., two collar-studs (1d. each), a halfpenny newspaper, and four halfpenny stamps, and he must ask the charge-nurse for the money to pay for these things. He was also enjoined that he would not remember anything of all this until the time actually arrived to carry it out. This point was particularly impressed upon him in order to test whether the amnesia could be assured or not by a direct command of this sort. Immediately on coming out of his room he was questioned by one of the nurses, Nurse P—, as to who had been in his room and what had been said to him. He could not remember anything that had been said to him. (It should be mentioned, by the way, that he had been given several other orders at the same time as the one above described.) Next morning (August 18th) at 6.20 a.m. the Charge-nurse D— asked him if he remembered what she had told him last night in his room. He looked very much surprised and said that she had not been in his room. The only thing he remembered was Dr. M— (myself) having been there. Subsequently, at 12.30 p.m., and at 5.30 p.m. the same day, she questioned him again on the same point, but he still did not remember

anything about it. Again, on August 21st, I hypnotised him, and whilst asleep I questioned him in order to ascertain whether he could remember anything that had been told him four days before. With great difficulty he at last succeeded in remembering an order which had been given him during the same *séance*, but still had no recollection of the one which concerns us for the moment. What follows is the nurse's own account of what happened on August 24th, the day on which the order was to be carried out: "On Wednesday morning (August 24th), at 10 o'clock prompt, J. S— came and said he had something to tell me, 'he had to go to the village of M— for a tin of boot-polish (3d.), two neck-studs, a halfpenny newspaper, and a penny packet of stationery.' I asked him if there was anything else; he said 'Nothing,' thought for a moment, then said, ' $\frac{1}{2}$ lb. of sweets.' This startled me very much, as I had forgotten all about it. At 12 o'clock the same day I asked him, after he had carried out the order, who told him to do so. He said I must have told him the last night I was speaking to him in J. R—'s room, but he could remember nothing more, and he also said that it was just like something he had been told to do, forgotten all about it, and then remembered at the time."

This is a remarkable instance of a post-hypnotic command being carried out with absolute amnesia in the intervening period, even when the patient was under hypnosis. Repeated interrogation by different persons and on different occasions failed to reveal the latent memory of the command. The nurse, too, in this instance had forgotten all about the order, and was very much surprised when it was carried out.

It will be noticed in comparing the order as given and as carried out that there is one small discrepancy between the two. Whereas he was told, amongst other things, to get two penny stamps, in the actual carrying out of it he substituted a penny packet of notepaper for the stamps. I was at first puzzled to account for this digression, but I remembered that whilst I was giving him the order—which I formulated as I went on—I hesitated between the two, the notepaper and the stamps. In my hesitation I mentioned both suggestions to the charge-nurse who was in attendance, and the patient probably assimilated unconsciously the order about the notepaper and disregarded the one about the stamps. This seems the most obvious and palpable explanation, for I distinctly mentioned both articles at the time, and probably communicated my hesitancy, all unwittingly, to the patient.

Other points of interest arose also in connection with this incident. For instance, whilst he was in the hypnotic state in the intervening period, during which he failed to recall the order about the shopping, he was able to remember another order given at the same time, although, curiously enough, he had omitted to carry it out. In most cases, too, if no specific injunction is given as to the remembering or not of an order, and the subject be hypnotised before the time arranged for carrying it out, he usually is able to recall the order during hypnosis.

The next experiment shows rather vividly how completely the attention of the patient may be directed by the will of the operator, so that he notices such impressions only as it is desired that he should notice. On this occasion, whilst he was hypnotised, he was told to awake only when a certain nurse, Nurse N—, had counted up to number ten, when

he was to awake suddenly. Three other nurses, Nurse D—, Nurse P—, and another, all went into the room in turn to try to awake him; they each of them gave him a good rousing, but without effect; he took not the slightest notice of any of them. Nurse N— then went into his room, and after laughing a good deal at the humour of the situation (which did not disturb him in the slightest), she began to count slowly in a loud voice, and when she got up to number eleven he opened his eyes and awoke suddenly. He did not remember anyone speaking to him nor what anyone had said, except the single fact "that Nurse N— said ten." It should be mentioned that he was quite familiar with Nurse N—'s voice and with that of at least two of the other three. It was the sound of the word "ten" as uttered by her which aroused him, but she had got on to number eleven before he actually opened his eyes. There was no doubt whatever as to the genuineness of the experiment. When he awoke his eyes were quite suffused, and he looked really confused, and surprised to find so many people in the room. Moreover, the sound of the nurse's laughter would have been quite sufficient to rouse an ordinary sleeper.

Commenting upon the above experiments and other investigations which were carried out certain points arise which I should like briefly to refer to. To begin with, one cannot hope for anything like mathematical certainty in the carrying out of orders. If several are given at the same time, one or two are very often omitted, or garbled, or remembered later on. This probably depends upon the state of attention of the subconscious mind of the patient, or the degree of emphasis which is put into the command. Again, in the great majority of cases where he carries out the order accurately he appears to regard it as a spontaneous action on his part, at any rate at the time. Very often he continues to recognise the action as his own; at other times he brings his judgment to bear upon it and comes to the conclusion that he has probably been told to do it by "the doctor," and this especially where the order resembles other orders which he knows have emanated from me, or where it involves a wide departure from his ordinary way of life. As an instance of his failure to appreciate any external factor entering in, I might mention the following: On one occasion whilst in the hypnotic state he was ordered to watch another patient very carefully, the reason of this being that the said patient J. H— had made several attempts to escape. Three times during the following day he inquired quite anxiously about the patient J. H—. He was asked by the nurse why he was taking an interest in J. H—. He said that it was because of his (J. H—'s) running away, and also that it was quite a likely question for anyone to ask.

Here his quite plausible explanation of his action is a sufficiently amusing proof that he regarded it as spontaneous on his part. The following was another instance in which the patient appropriated a "suggested" action entirely to himself: On one occasion during the evening J. R— was put to sleep, and was told, among other things, that he would not want his porridge at breakfast-time next day. He was further told that he would not want any soup at dinner-time. Next day he steadfastly refused both his porridge and his soup. When interrogated by the nurses as to why he was missing these dishes, which

he was ordinarily so fond of, he merely replied that he did not want them. He did not appear to connect me in any way with his not wanting these particular dishes, but seemed really not to desire them. Furthermore, he was told on November 10th that he would want to write to his friend Jenny the following Sunday (November 14th) at 3 p.m. He actually wrote a letter to his friend on November 14th and at 3 p.m. When asked why he had written then he said that he was due to write a letter—as a matter of fact he had not written for four months, he said. Here, again, he did not connect me with the incident in any way, but evidently regarded it as a quite spontaneous act.

In conclusion, I should like to add that in my hypnotic suggestions I have rarely tried to make suggestions directly in opposition to the patients' known likes or inclinations. In the one notable case where I attempted it, namely, that of J. S—, whom I tried to wean from the habit of smoking, I was successful for only a few days. The habit quickly reasserted itself; but perhaps with a long-continued habit of this sort it would be necessary to persevere for days together in order to produce any permanent result. Certainly the ordinary method of hypnotic suggestion, however forcefully carried out, was quite inadequate.

Finally, I should like to acknowledge my indebtedness to Dr. W. A. Parker for permission to publish these notes, and for the facilities he has accorded me generally in their production.

A Case of Moral Insanity with Pyromania. By H. D. MACPHAIL, M.A., M.B., Assistant Medical Officer, City of Newcastle Asylum, Gosforth.

THE following are a few notes of an interesting case of a male patient, who was admitted here in July, 1910, after giving himself up to the police, because he had an uncontrollable desire to set fire to haystacks:

He is a healthy, robust man, æt. 49, well proportioned and developed, and looks a good specimen of the labouring class. His palate is highly arched; he stammers in speech, especially when excited, and his articulation is indistinct, otherwise there is nothing to note about his physical condition.

His life story, as told by himself, is one long succession of crimes and consequent punishment. He was always wayward, and while still a boy he ran away from home. His first serious offence was committed at the age of fourteen, when he set fire to a house which was being built. After this he was placed in a reformatory, where he frequently felt inclined to set things on fire, but never actually did so. At the age of twenty-two, on the instigation of some unscrupulous man, he broke into a shop and stole goods, which he handed over to this person. After serving a six months' sentence for this he broke into a jeweller's shop

and stole rings and jewellery because he wanted some money. Since then he has set fire to haystacks on three occasions, and has undergone penal servitude. Since his release he had attempted to set fire to stacks several times. He then gave himself up to the police, was certified, and sent here.

When asked why he sets fire to things, he says it is because he cannot help it; he says he feels he must do it, and is never satisfied until he has made the attempt. He describes how, as he walks along the road, he has peculiar sensations in his head, he hears bells ringing and voices shouting, "Fire! Fire! Go and do it." He then adds, "I do it; I cannot help it." He says this uncontrollable desire comes and goes; it may be present for a fortnight at a time, and then be entirely absent for three or four weeks on a stretch. He says he commits theft without thinking much about it; he steals the articles because he wishes to have them.

He says that, as long as he can remember, bright and glittering objects always had a great fascination for him. He has often stolen trinkets even when he could make no use of them. As a child he was fond of playing with fire. He describes how he would set fire to pieces of paper and take delight in waving them round his head. He often amused himself by lighting fires in the backyard and dancing round the blaze.

Since his admission here he has been quiet and well-behaved, is fond of reading, and takes an intelligent interest in his surroundings. He is a willing worker, and does anything from ward helping to working with pick and shovel. He says he still, at times, feels the desire to set fire to things. On several occasions he has told those about him that he would like to set fire to the asylum. Once or twice, while walking in the grounds, he became very excited at the sight of a heap of garden rubbish on fire, he gesticulated and clapped his hands, and appeared in an ecstasy of delight. When the desire comes upon him he says he does not feel quite as usual, and has been noted to be quieter and rather moody.

This case is very interesting both from the clinical and the medico-legal aspects. The man does not conform to the ordinary laws of Society, and the question arises as to whether he is to be held responsible for his actions. Are we to regard him as a criminal or as a person who is insane, or is it possible that he may be a malingerer? It is not likely that he is malingering, as his experience in the past of imprisonment and penal servitude would hardly induce him to persevere in such a course. In examining the circumstances connected with his misdeeds, we find that they differ somewhat from what we would expect in the case of an ordinary criminal. There is throughout an absence of adequate motive. His acts of theft are committed on very slight pretexts; on the first occasion, because he is prompted by an unscrupulous person who wishes

to profit by his misconduct; and on the second, because he wishes to possess the articles regardless of consequences. His acts of incendiarism were prompted by no adequate motive. They differ from the thefts in that they appear to be impulsive in nature. They are committed because he feels he must obey the impulse, as he believes he cannot rest until he has set fire to something.

This appears to be a case of moral insanity with periodic impulsiveness. The patient is deficient in the moral sense, and has a very elementary idea of the difference between right and wrong. He is unable to adapt himself to the conditions of existing Society. He is not to be held responsible for his actions, and must therefore be deprived of his liberty, and his detention is in the interests both of himself and of the public.

My best thanks are due to Dr. Callcott, Medical Superintendent, for permission to report this case.

Occasional Notes.

The Prevention of the Propagation of Imbeciles and Defectives.

Preventive medicine is hourly becoming more prominent in the national life, and of all questions concerning the national health probably there are few receiving more consideration by those interested in the progress of the community than this, of the propagation of imbeciles. The Medico-Psychological Association, so largely the custodian of this section of the population, should naturally be expected to be foremost in considering and advising the nation in everything relating to this subject.

That imbeciles and defectives are being produced on a large scale by parents of the same class is too well known to demand any reiteration of the facts and figures on which this statement is based. A single quotation from the recent Report of the Commissioners in Lunacy is a sufficient confirmation and illustration, both of the fact and of the serious extent of the evil: "In *one* country workhouse, . . . the visiting Commissioner, . . . found three women of the (weak-minded) class who had between them had eleven illegitimate children, and

three others awaiting confinement, one of whom had already had five illegitimate children."

The paper by Dr. Faulks, printed in another part of this Journal, gives details of the operation by which such persons as those quoted above could be prevented from thus handing on to posterity an ever-increasing burthen, together with a description of the results of such operations on the individuals.

The assumption may fairly be made that all thinking persons would agree that the prevention of this multiplication of imbeciles is most desirable. There are, however, practically only two methods of prevention—segregation and sterilisation.

If the question of sterilisation should come to be seriously debated by the Medico-Psychological Association, it should also consider, at the outset, whether its deliberations should be made public before some definite conclusion had been arrived at. Facts and arguments used in such a discussion may often be perverted to meanings that they were never intended to convey, and reflections might be cast on the morality of individuals, or even of the Association as a whole, which would not be justified by the final conclusion of its deliberations.

Medical Inspection of School-children.

We understand that the members commissioned by the Annual Meeting to appoint the Committee on Medical Inspection of School-children have re-appointed the whole of the preliminary committee, and have added the names of various members residing in all parts of the Kingdom. The Committee is now composed of Drs. Auden, Bevan-Lewis, Bond, Carswell, Clouston, Cooke (of Wakefield), Drapes, Dawson, Foulerton, Macpherson, Mercier, H. Newington, Rainsford, Rotherham, James Scott, Shuttleworth, and Taylor (of Hellingly). In addition the Committee have co-opted, under the powers given to it, Dr. Warner (of Leicester), Dr. Kerr (Medical Officer of the London County Council Education Committee), and Dr. Caldecott (of Earlswood). A committee constituted of men possessing such widely varying experience of mental defect should command the consideration of the Educational authorities and of all interested in this work. We cannot but think that this is a most important departure, and one that will afford

the Association an opportunity of exercising that influence which belongs to it from its intimate knowledge of many aspects of school life. For years past individual members have urged the claims of mentally deficient children to special consideration, being prompted thereto by so many instances of the evil results attending a cast-iron form of education. Our representatives, acting together with the non-alienist element, whose experience must be of the greatest value, should be able to indicate the best methods of preventing those results. We believe that the work of the Committee will be the best that the Association can offer for the solution of this intricate and important problem. Several medical men interested in juvenile defectiveness have already joined our ranks, and we may hope that by other accessions the standing of the Association will be sensibly increased, and the scope of its work widened so as to include full study of those classes of mental defect which have hitherto, to a considerable extent, been insufficiently considered. For ourselves, we desire to say that our pages will be open to any communications on child-deficiency, and we should be glad to have sufficient material to occupy a special section of the Journal.

Part II.—Reviews and Notices.

The Sixty-fourth Report of the Commissioners in Lunacy for England, 1910.

The Report opens with the satisfactory statement that the increase of persons under care in 1909 was only 1,766, this being 628 below the annual average of the decennium and 379 below that of the quinquennial period. It is lower than any yearly increase since 1901.

The ratio of insane persons to the general population at large is, however, increased, the total number, 130,553, being one in every 277, as against 278 in the previous year.

The private patients show an increase of 2.1 *per cent.*, due probably to the greater facilities for treatment at a moderate cost in the annexes for private patients in connection with county and borough asylums.

The patients in provincial licensed houses, however, show a falling off of 2.2 *per cent.*

“Pauper” patients show an increase of 1.3 *per cent.* Twenty counties

show a decrease as against fourteen in 1908, but only three of those showing a decrease in 1908 have also a decrease in 1909, so that in the two years no less than thirty-one counties have recorded a decrease. The tendency to reduction of the rate of increase is therefore more than a mere local fluctuation, but is widely spread throughout the country.

The first admissions (17,862) per 10,000 of the population yields a ratio of 4.99, which contrasts favourably with that of 5.76 in 1902.

Although this lower ratio is still above that of 1898, when it was 4.92, it tends to show that occurring insanity is not largely increasing, and that the accumulation of insane persons in asylums, etc., is mainly due to other causes.

The diminished recovery-rate is largely responsible for this accumulation. In 1900, for example, while the total admissions were 1,927 less than in 1909, the recoveries were only 219 more in the latter year.

The recovery-rate in 1909 was only 6.1 *per cent.* of the total number under treatment, being .69 *per cent.* under the average of the past ten years. The deaths, on the other hand, 9.78 *per cent.*, were .18 below the average of the past decade.

The accumulation of insane persons, however, must principally be due to less curable forms of insanity coming under care, and it would be very desirable to obtain more definite information in regard to this.

In Table XXIV it is shown by contrast with the statistics of first admissions that 9.3 *per cent.* of the admissions had been treated for first attacks outside of institutions for the insane. This latter gives a basis for an approximate estimate of the number of cases being thus treated, at the present time, and for comparison in future years with the existing condition.

Table XXVII gives the average number of previous attacks in direct admissions, and this in time will yield another element for comparison of the relative curability of the cases admitted so far as this unfavourable antecedent is concerned.

The assigned causes (Tables XV and XVI) will also at a future date give valuable information, not only of any variations in causation, but of intensity of disorder. Still more important evidence will be obtainable from the Table (XVII) giving the correlations (or combination) of causes.

Statistics of age in relation to the occurrence of insanity must already be available to a considerable extent, and it is to be regretted that they have not in this year's report received the attention which their importance demands.

The Commissioners draw attention to the fact that as a result of their consideration of schemes for alterations, etc., in asylums, the estimated cost of these was reduced from £347,150 to £301,261. This is an achievement with which they have every reason to be satisfied.

A scheme for the erection of an eleventh asylum for the county of London is recorded—a saddening necessity.

The Commissioners report their efforts in pressing workhouse authorities for the certification and detention of weak-minded women, who at present use the workhouses as a lying-in place. They record

that in one country workhouse the Visiting Commissioner found three women of this class who had produced eleven illegitimate children and three others awaiting confinement, one of whom had already had five illegitimate children. This state of things is simply appalling, and the Commission would do well to seek special parliamentary powers to attack an evil, which is obviously of such proportions as to demand the immediate attention of the Legislature.

The Commission has appealed to the Local Government Board, but it is probable that much more serious measures will be needed than a mere circular from that authority to check such an extensive evil.

Post-graduate instruction in psychiatry is supported by the printing of the views of the Medico-Psychological Association as expressed in a circular letter on this subject. The Commissioners express their "warmest sympathy" with this object.

The Discharged Patients' Relief Fund, formerly limited to paupers discharged from licensed houses, with the sanction of the Charity Commission, on the representations of the Board, has been extended to all recovered patients, and is used in co-operation with the After-care Association. It is to be regretted that the income (£40) is so small.

The record of scientific research work in asylums is again very satisfactory, although only sixteen asylums have contributed. The titles of the papers show the very wide range with variety of scientific research and observation which the study of mental diseases involves. The value and importance of the work have been amply exemplified in the pages of this Journal.

The Commissioners record their satisfaction at the passing of the Asylum Officers' Superannuation Bill, to which their representations and influence largely contributed. Their efforts have been so long continued, and have been taken so much as a matter of course, that possibly they have not received that recognition which was justly due.

No mention is made of any probable increase of the strength of the Commission, either by the appointment of additional Commissioners or by amalgamation with the Chancery Department.

When the absurd inadequacy of the staff of the Commission is taken into consideration the amount of work performed by it is astonishingly large, and the report, in the circumstances, cannot be criticised from the point of view which might be demanded from an adequate Commission.

Much of the extensive and detailed work recorded in the Report is of a nature that might well be performed by men of less mature experience than the present members of the Board. The system of junior commissioners, which has worked so well in Scotland, might well be tried in England.

Fifty-second Annual Report of the General Board of Commissioners in Lunacy for Scotland. Edinburgh: Oliver & Boyd. London: Wyman & Son, Ltd. Dublin: E. Ponsonby, Ltd. Pp. lxxvii + 176. Price 1s.

The Scottish Lunacy Blue-Book gives the usual statistical information regarding the number, distribution, and cost of maintenance of the

insane in Scotland for the year 1909. At the end of the year, exclusive of insane persons maintained at home by their natural guardians, there were 18,337 insane persons of whom the General Board had official cognisance, including the inmates of Training Schools for Imbecile Children and of the Criminal Lunatic Department of Perth Prison. Of these, 2,560 were maintained from private sources, 15,724 by parochial rates, and 53 at the expense of the State. The figures show an increase of 140 during the year. Of that increase, 29 were among *non-registered* lunatics, namely, 27 in Training Schools for Imbecile Children, and 2 in the Criminal Lunatic Department of Perth Prison. Among the *registered* insane there was in Royal Asylums a decrease of 39 private patients and a decrease of 18 pauper patients; in district asylums a decrease of 32 private patients and an increase of 443 pauper patients; in private asylums a decrease of 2 private patients; in parochial asylums a decrease of 347 pauper patients; in lunatic wards of poorhouses an increase of 88 pauper patients; and in private dwellings an increase of 1 private patient, and an increase of 17 pauper patients. The general result of the changes among the *registered* insane is an increase of 111 during the year, of which 93 were in establishments and 18 in private dwellings. It is pointed out that this increase, which is the product of an increasing general population, is the smallest recorded in any year since the institution of the Board. The number in establishments showed a decrease of 73 private patients and an increase of 166 pauper patients. The average annual increase of pauper patients in establishments during the preceding five years was 195; and thus the increase of 166 during the year 1909 has been less than the average increase of that quinquenniad. There was a decrease in the number of pauper lunatics during the year in sixteen counties, while the increases continue to be found in counties having industrial areas with increasing populations, such as Lanark.

The admissions to establishments, exclusive of transfers, show (1) that the number of private patients received during last year was 496, being 114 less than in the preceding year and 73 less than the average for the quinquenniad 1900-04; and (2) that the number of pauper patients received was 2,753, being 160 less than the number during the preceding year and 255 below the average for the quinquenniad 1900-04. The number of transfers from one establishment to another was 519. There were discharged recovered 215 private patients, being 19 less than in the preceding year and 37 below the average for the five years 1900-04, and 1,030 pauper patients, which is 151 below the number for the preceding year and 261 less than the average for the five years 1900-04. Calculated on the admissions, exclusive of transfers, the recovery-rate for private patients was 43·4 *per cent.*, and has not shown any falling off of late years. But among pauper patients the recovery-rate was only 37·4 *per cent.*, and there still seems to be a continuance of the tendency to lowering of the recovery-rate, which has been more or less apparent since 1900. "The lowering of the rate is probably to be mainly ascribed to the accumulation of chronic patients and to the fact that the development of nursing and the improved means of hospital care in asylums have led to their being more freely used for the reception of patients whose age and whose mental and physical condition are

such as to preclude hope of recovery. Persons in moribund states or suffering from incurable physical diseases, complicated with mental unsoundness or decay, are now sent to asylum hospitals instead of being sent to ordinary infirmaries or of being kept at home until death takes place, and returns obtained by us . . . prove conclusively that of late years the number of persons admitted at ages so advanced as to render recovery almost impossible has largely increased." The number of cases discharged unrecovered during 1909 was, among private patients, 149 (which is 21 above the average of the five years 1900-04), and among pauper patients 369, which is 47 below the number so discharged in the preceding year and 44 less than the average for the five years 1900-04. Calculated on the average number resident the percentage of unrecovered discharges is 6.4 for private patients and 3.0 for pauper patients. Here, again, there has for a number of years past been a progressive falling off in the discharge-rate, particularly among the pauper cases. The deaths among private patients were 209, and among pauper patients 1,184. In both classes the number is considerably above the average for the five years 1900-04. The percentage death-rate has not shown any marked change in recent years, but its tendency is in the direction of increasing, and it is distinctly higher than it was from ten to twenty years ago.

When pauper cases coming on the register for the first time are taken by themselves—that is, when readmissions are excluded—the proportion per 100,000 of the estimated general population is found to have fallen considerably of late years, the average for the last five years being forty-six, while for the previous quinquenniad it had been fifty. The annual *production* of registered lunacy is therefore not increasing, but on the contrary, shows a tendency to lessen. With a lowered admission-rate and a higher death-rate, it might have been expected that the absolute number remaining on the register would also fall; but the figures show that this number is still increasing, though less rapidly than formerly. In other words, some degree of accumulation is still taking place in establishments, and this appears to be due mainly to the lessened proportion of discharges both among the recovered and the unrecovered. The proportion of registered patients per 100,000 of the general population is now estimated at 364; and in spite of the rise in the absolute number remaining resident at the end of 1909, this proportion is slightly below the corresponding figures for each of the two preceding years.

A table is given showing the progressive history of 2,539 patients admitted for the first time into asylums in 1898. At the close of the second year 209 re-admissions had occurred among these cases, and at the close of the tenth year the re-admissions numbered 662. At the end of 1909 (close of the twelfth year) the re-admissions had risen to 724, equal to 28.6 *per cent.* of the original number admitted, and the number of the original patients remaining in asylums was then 509.

The provision of care in private dwellings for the more easily managed classes of lunatics, both private and pauper, continues to receive special attention in Scotland, and is both beneficial for the patients and useful in lessening the pressure on the accommodation in asylums. The number of pauper patients so provided for at the end of 1909 was

2,843, which is an increase of 17 on the previous year, and is also the highest figure yet reached. In connection with this, mention may be made of an interesting experiment carried out at Inverness. The asylum there serves for a very wide area, including Ross-shire, Sutherlandshire, and the Western Isles (Skye, Lewis, etc.). The trouble and expense of moving patients over such long distances, with the risk of failure, naturally hampered the giving of a trial in cases which might be suitable for private care if the patients had to return to their own parishes; and to overcome this difficulty several colonies have, by the active co-operation of the Deputy-Commissioner in Lunacy and the asylum and parochial authorities, been established within a radius of sixteen miles of the Inverness District Asylum, to which patients from remote as well as neighbouring parishes can be sent, and a trial thus given at small expense. In this way it has been possible to get over 100 patients boarded out from the District Asylum within the last three years. These rural colonies are regarded as entirely successful, and capable of further extension. They serve a most useful purpose in connection with boarding out, and indicate a method of providing for insane patients which might be adopted with advantage in other districts.

In regard to expenditure on lunatics, the cost of erection and upkeep of asylums varies much in different instances, ranging from £5 9s. 1d. to £35 11s. 11d. per patient, and the average being £17 13s. 6d. The cost of maintaining the patients in district asylums (that is, the expenditure for food, clothing, medical treatment, etc.) varies also in different cases, but to a much smaller extent than the capital expenditure. It ranges from £19 7s. 1d. to £31 12s. 5d. per patient per annum, the average being £26 6s. 11d. In licensed wards of poor-houses the expenditure varies from £16 14s. 7d. to £27 15s. 1½d., and in private dwellings from £12 10s. 11½d. to £23 11s. 5½d. per annum.

Among other points dealt with in the Blue-Book, short references may be made to the following:

(1) *Changes among attendants and servants in asylums.*—These are still numerous, but the great bulk of them occur among those who have been in asylum service for only a short time, and who, after trial, have probably found the work to be not congenial. It is hoped that the recently passed Superannuation Act will have some effect in promoting longer and more steady service in asylums, and in counteracting inducements to quit it for other forms of employment.

(2) *Want of accommodation for the poorer class of private patients.*—It has long been recognised that in Scotland there is difficulty in procuring accommodation for this class, and consequently it is a not infrequent practice to have the names of such patients put on the parochial roll simply in order to obtain admission to the district asylum for them. It is pointed out that there is a considerable and increasing number of persons who are in asylums as pauper patients, but who repay the entire cost of their maintenance to the parishes to which they belong, and who, therefore, should be regarded as private patients, though appearing nominally as paupers. The opinion is expressed that permissive power should be given by statute to district lunacy boards

to provide accommodation under suitable conditions for this class. At present there is no such power in Scotland, and cases are received into the district asylums as private patients only as long as the accommodation which has been provided in view of future pauper requirements remains unoccupied by pauper cases.

(3) *Dangerous and criminal lunatics*.—In Scotland the statutory powers for dealing with criminal lunatics allow of their being sent either to the local asylum or to the State Department for Criminal Lunatics in Perth Prison. In practice there has been much diversity in using these powers, so that cases requiring the special precautions of the Perth Department were sometimes sent to ordinary asylums, and cases which could have been suitably enough provided for in the local asylum were sometimes sent to Perth. On the recommendation of the General Board of Lunacy, the Crown authorities have now arranged that cases involving charges of serious crime shall in the first place be sent to the Perth Department.

(4) *Asylums Officers' Superannuation Act*.—This Act, though passed by Parliament in December, 1909, did not come into operation in Scotland until May 15th, 1910, and its effect therefore does not come within the time covered by the present Blue-Book. The report accordingly gives only a very short statement of the provisions of the Act and of the special duties laid upon the General Board in carrying it out.

(5) *Quinquennial retrospect*.—In addition to the lunacy statistics for 1909 and a general comparison with those of former years, a retrospect is made of the movements of the figures during the last five years, in continuance of similar reviews given from time to time in previous reports. The conclusions brought out by that retrospect in regard to lowering of the admission- and discharge-rates and increase of the death-rate, etc., have already been indicated above.

Fifty-ninth Report of the Inspectors of Lunatics (Ireland) for the Year ending December 31st, 1909.

The usual summary of the distribution of the insane in Ireland is given at the opening of the Report, and from it we learn that the total number of the insane under care at the close of the year 1909 was 24,144, the corresponding number for 1908 having been 23,931. There was thus a rise of 213 during the year, which was precisely the same as the increase of the previous year, and 150 less than the average increase for the preceding ten years. This average, 363, shows, again, a very substantial reduction from that of the ten years ending 1898, which was 413. During the last three quinquennia there has been a remarkable difference in the rate of increase of the proportion of insane to population. In the first five-year period ending 1899 the respective annual increments in the proportion per 100,000 of estimated population were 18, 15, 14, 17, 14, or an average annual increase of 15.6. During the second period ending 1904 the corresponding figures were 11, 13, 12, 17, 6, or an average of 11.8, and during the last five years they were 10, 5, 5, 5, 5, or just a little over one-half the previous rate. Undoubtedly the statistics of recent years justify the hope that we have reached, or

at least are reaching, the acme of the increase of insanity, and that in subsequent years, possibly after a more or less stationary period, we may begin to anticipate a decline. An eminent specialist is reported to have lately given utterance to the rather pessimistic view that it is only a matter of time until the majority of the population will consist of insane persons. To dismal prognostications of this kind we cannot give our adherence. If recent statistics can be relied on to tell anything, their tale is a more hopeful one.

As regards district asylums, with which the Report is mainly concerned, if we take the daily average—which is the most reliable index of the changes in asylum population—over a series of years, we also find a marked reduction in the rate of increase. The daily average for the five years 1894–1898 was 13,756, for the next similar period 16,870, and for the past five years 19,255, the increase for the middle period over the first being 22·6 *per cent.*, while that of the last over the previous one was only 14·1 *per cent.*

The admissions tell a similar tale. The proportion of total admissions per 100,000 of estimated population for the first quinquennium was 74·5, for the second 85·4, and for the last 83·2, while for first admissions the corresponding figures are 57·6, 68, 66. The tendency of this proportion, therefore, to fall during recent years is quite evident. The proportion of re-admissions is all but stationary for the same periods, being 16·6, 17·6, and 17·4 respectively.

An interesting point as regards the relative proportion of the sexes affected with insanity is brought out by the Inspectors, *viz.*, that while the proportion of males to females in all the district asylums taken together has remained practically constant for the past thirty years (in 1880 and in 1909 the ratios of males and females were 54 and 46 respectively), notable differences in this proportion are to be found in individual asylums. And further examination reveals the fact that “the tendency is for the males to outnumber the females very considerably in rural districts, and for the females to outnumber the males in manufacturing and industrial centres.” If, for instance, we compare the city of Belfast with the three rural districts of Castlebar, Letterkenny, and Ballinasloe the result will be seen from the following table:

				Percentage of total.	
	M.	F.	Total.	M.	F.
Belfast	563	655	1218	46·2	53·7
Castlebar	503	290	793	63·4	36·5
Letterkenny	448	274	722	62·0	38·0
Ballinasloe	842	545	1387	60·7	38·2

The proportion of the two sexes in the general population in 1909 was about equal. But the inspectors consider that the fact that the proportion of males in public asylums is greater than the relative proportion in the general population cannot be taken as proof that the ratio of insanity amongst the males is higher. The explanation offered by the inspectors is that when a man becomes insane the necessity for sending him to an asylum is much greater than in the case of a woman for two reasons—first, he is more difficult to manage at home or in a workhouse, and secondly, being usually the bread-winner, when he

becomes incapacitated, want of means compels his family to place him in an asylum. We would, however, suggest a reason for the ratio of male insane being actually higher. There are certain causes of insanity which operate in men in a far higher proportion than in the case of women, such as drink, sexual disorders, accident or injury, and the period of puberty. The total number of cases in which these were the assigned cause was in males 410, and in females 95. And if the causes peculiar to females alone, *viz.*, those connected with the reproductive functions of pregnancy, parturition, lactation, and the climacteric, ninety-four in all, be added to this latter number, it still falls far short, in fact does not amount to one-half, of the cases assigned to causes which preponderate in the case of males. Of course, as has been frequently observed in these columns, the table of causation of insanity in present use is altogether unreliable from the fact that only one cause can be entered, whereas there may be several, but as there is, presumably, as much error in the entries with respect to one sex as the other, the proportions indicated by the above figures may probably be regarded as approximately correct.

The percentage of patients under care in district asylums and in workhouses shows a continuous rise in the one case, with a continuous fall in the other. Thus, in 1880 the ratio was 67 *per cent.* in asylums and 27 *per cent.* in workhouses. In 1909 the proportion was 84 and 11 *per cent.* respectively. For the past five years the proportion of patients in private asylums has been absolutely constant at 5 *per cent.* of the total.

The recovery-rate averaged 38·4 *per cent.* on admissions, being 1·5 *per cent.* higher than in the previous year, and varies considerably in the different asylums from the maximum rate of 57·9 in Ennis asylum down to the minimum 25·2 in Londonderry. It is difficult to account for the recovery-rate being more than double in one asylum than what it is in another, but in any one year it is possible that an unusually large number of unfavourable, senile, or incurable cases may chance to be sent to some asylums, which would lower the recovery-rate to a large extent.

The death-rate was 7·6 *per cent.* on the daily average, and, like the recovery-rate, varies within fairly wide limits, being as high as 12·6 *per cent.* in Killarney, where it was also highest in the previous year, and only 4·6 in Clonmel and Ennis asylums. The mortality from phthisis shows a percentage of 22·7 on the total mortality, ranging from 35·1 in Clonmel down to 8·1 in Belfast. It is unnecessary to comment on this feature in the mortality as it was dealt with at some length in the review of the Inspector's Report last year. The figures of the present Report only corroborate what was there stated. It is enough to reiterate here what has been urged in these pages on more than one occasion, that, as far as statistics show, and notwithstanding the opinion of many eminent authorities that there is an intimate, almost a demonstrable affinity between the two maladies, the connection between phthisis and insanity, *quâ* insanity, is as yet non-proven, although it may be accepted as undeniable that the conditions of asylum life are more or less favourable to the spread of consumptive disease. Farther than this any dogmatic utterance on this question for or against the generally

accepted view is hardly justifiable. But we venture to maintain that the evidence, if fully and impartially weighed, is quite insufficient to establish any necessary or indubitable relationship between the two diseases. In Clonmel asylum special blocks for consumptive patients have been completed now for over a year, and it will be interesting to note whether the mortality from this disease will be proportionately reduced in future years.

Seventy-nine deaths were due to general paralysis, being a percentage of 5.1 on the total deaths. This is a great advance on the mortality of the previous year, when there were only 46 deaths from this disease, or 3.2 *per cent.* In twelve out of the twenty-three district asylums no death from general paralysis was recorded, and 58 out of the 79 deaths, over 73 *per cent.* of the whole, occurred in Dublin and Belfast asylums, the rest of Ireland contributing only a little over one-fourth of the aggregate of deaths from this disease, a further indication, if such were needed, that general paralysis is prevalent to any extent only in large centres of population, where the opportunities for leading a dissipated life most abound, while rural districts are comparatively exempt.

The Inspectors comment again on the paucity of pathological work done in Irish asylums. If the Committees could be prevailed upon to contribute a very moderate annual sum towards the maintenance of a central laboratory and pathologist, a great deal of valuable work in this direction might be done. But, up to the present, with the exception of one or two of these bodies, they have shown themselves absolutely apathetic, if not actually hostile, to any scheme of this kind. The advance of knowledge is not an object that appeals much to the heart of rural democracy.

In no less than ten of the district asylums additional accommodation is needed, and a state of overcrowding exists. In the case of quite a number of these the inspectors have frequently called the attention of the committees to the necessity for providing much-needed further accommodation, but, as far as can be judged from the remarks in the Report, in the case of many of them the committees have, up to this, turned a deaf ear to their representations. Overcrowding, if long continued, is almost certain to cause deterioration in the health of the inmates generally, and in particular, to increase the mortality from tuberculosis. To refrain from action in circumstances such as these is little short of criminal negligence.

The inspectors record with extreme regret the retirement of Dr. R. L. Donaldson, who had only been appointed as Medical Superintendent of the Monaghan Asylum in 1907. Early in 1909 Dr. Donaldson was violently assaulted by a female patient, with such serious results to his health as to compel him to resign. Contingencies of this kind attract but scanty attention from the general public, who do not realise, and it is to be feared too frequently do not want to realise, the daily and hourly risks which have to be faced by every worker in asylum service, from the medical superintendent down to the most junior attendant. Dr. Donaldson deserves, and has, our fullest sympathy on account of this premature termination to a promising career. He has been succeeded by Dr. Thomas B. Conlon, Senior Assistant Medical Officer in the same asylum.

Allusion is made to that very notable event in asylum annals, the passing of the Asylums Officers' Superannuation Act, which came into operation on April 1st, 1910. As by this time everyone concerned is probably familiar with the provisions of this Act, any detailed comment with respect to it would be superfluous. It will suffice to say that while the Act was directly the outcome of vigorous action on the part of the Asylum Workers' Association, in which Dr. Shuttleworth was *facile princeps*, to whom the whole asylum service is under the deepest obligations for his unwearied exertions on their behalf, it must not be forgotten that the Medico-Psychological Association for many years past has been quietly working in the same direction, and during the final stages of carrying the scheme into effect the two associations cordially co-operated in the endeavour to attain their common aim. The Act is admittedly imperfect in several points, but its crowning result is that the principle has at last been admitted that workers in asylum service are entitled to assured pensions when no longer fit for work; and although some may consider that the conditions necessitated by the contributory element in the scheme bear somewhat hardly on employés, especially those in receipt of small pay, such as is given in most Irish asylums, still, when compared with the scales and conditions of pension which are in force with respect to other public departments, the terms, on the whole, can hardly be said to be other than equitable. The Act will no doubt bear amendment, which we will hope may be effected later on, but, even as it stands, it is a welcome and substantial instalment of a long-wished-for boon, and has to a large extent removed a long-standing grievance.

The urgent need for institutions for idiot and imbecile children is again dwelt on by the inspectors, and they suggest that a disused work-house might be set apart and fitted up for the reception of such cases for several counties. The guardians of any union are empowered to contribute 5s. per head per week towards the support of children in an institution of this kind, and, with an additional grant from Government, the project ought to be feasible without entailing any very serious expense.

In conclusion we have one suggestion to make, *viz.*, that the value of such tables as those given on pages 12 and 14, giving proportion per 100,000 of estimated population of insane under care, and of admissions to district asylums, would be greatly enhanced by an additional column giving the *averages for five-year periods*, as has been done in Table VIII with respect to recoveries and deaths. Such a return would not involve any very voluminous calculations, and would admit of easy continuation once the first computation had been made. In no way so readily and so rapidly as in this can the advance or retrogression in the increase of insanity, or in the rate of increase, be estimated, one of the most important items of information to be gleaned from tables of this kind, which would thereby furnish, especially as far as the public is concerned, the one thing needful, and constitute, as it were, the very essence and cream of lunacy statistics.

Three Lectures on Epilepsy. By WILLIAM ALDREN TURNER, M.D., F.R.C.P. Edinburgh: John F. Mackenzie, 1910. Demy 8vo, pp. 62. Price 3s. 6d. net.

These lectures were delivered before the Royal College of Physicians in Edinburgh in 1910. The first deals more particularly with the problem of epilepsy, the second with the borderline of epilepsy, and the third with the treatment of epilepsy.

Before describing the problem of epilepsy the author gives a brief historical survey of the subject, and names the authors who have written on the subject from the time of Hippocrates, Lucretius, and Galen down to the latter half of the nineteenth century. The author says that "the term epilepsy refers to a symptom," and that under this name are included a group of diseases which may be divided into four divisions: the organic epilepsies; the early epilepsies; the late epilepsies; and idiopathic epilepsy. The first three are shortly described, but considerable space is devoted to idiopathic epilepsy.

In discussing the problem of epilepsy, the convulsive element and the psychical element have to be considered, and this the author proceeds to do. The course of epilepsy is described and the pathological anatomy as well, and the author rightly says that many of the changes that are found are the effects and not the cause of the seizures. The predisposing, the exciting, and the immediate causes of individual seizures are considered. Under the first heading two tables are given, one of which shows the percentage of hereditary factors in the causation of epilepsy in 890 cases which had come under the author's notice; the other shows the percentage frequency of epilepsy, insanity, and alcoholism as predisposing causes. The stigmata of degeneration in epilepsy are described, and the age at which epilepsy arises is mentioned. The exciting causes are shortly considered, and so are the immediate causes of epileptic seizures. The author is of opinion that cerebral anæmia is the cause of convulsions, but that it cannot be proved that either vaso-constriction or cerebral anæmia is the exciting cause of the recurring seizures of epilepsy. With regard to toxæmic causes, the opinions of several writers are described, and the conclusion is drawn that epilepsy due to toxic causes may be found in serial epilepsy and the *status epilepticus*.

The lecture on the borderline of epilepsy is a short one, occupying only ten pages. The differential diagnosis between hysterical seizures and epileptic attacks as regards their paroxysmal phenomena is given, and the distinct characteristics of the two affections are pointed out. The author refers to attacks which are neither hysterical nor epileptic in character, and which occur in persons of a neurasthenic or psychasthenic temperament, and to these he gives the name "epileptoid." These attacks he divides into two groups; the first having symptoms of a vaso-motor character, the second of a psychical character. Both of these are described, and he then gives a full description of epigastric and cardiac warnings.

The third lecture on the treatment of epilepsy is certainly the most important one. However interesting it may be to us as medical men to discuss the problems and borderlines of epilepsy, yet after all the

laymen come to us for treatment. It is important that the peripheral organs of the body, such as the nose, the eyes, the teeth, etc., should be examined, as epilepsy is often excited by reflex irritation of these organs. A capable nurse should be employed in early stages of the affection, and she should make use of warm baths, douches, and massage, to promote skin-excretion. Daily exercise in the open air is necessary, but the form of work which should be made use of depends upon the physical condition of the patient. The author does not think that children who suffer from these seizures even when they are only infrequent should be sent to school, but considers that private education is better. He is also of opinion that the marriage of epileptics should be discouraged, and in this opinion he will find that many medical men will agree with him. Different treatment is required in the early stages of epilepsy from that which is of use in the confirmed disease. Large doses of the bromide are not necessary; they may be used alone or in combination, but they should be given for at least nine years. Of the combination of bromide with other remedies he considers Gélinau's formula, which consists of bromide, picrotoxin, and arseniate of antimony, the most satisfactory. Organotherapy and serotherapy are of no use. When *status epilepticus* is feared the bromide should be much increased and fifteen grains of chloral added to it, and if the fits recur with great frequency and severity chloroform must be inhaled by the patient until complete anæsthesia is obtained. If acute amentia follows, a careful and efficient nurse will be required, and strychnia, digitalis and alcohol should be given, and abundant nourishment will be necessary, either by the mouth or in the form of an enema. Should acute mania follow, an attendant in the case of a man or a nurse if a woman should be employed to protect the patient from the effects of violent excitement. Hydrobromate of hyoscin in doses of $\frac{1}{75}$ to $\frac{1}{100}$ grain given hypodermically will be found satisfactory. As to dietetic treatment, if the quantity of salt taken is reduced smaller quantities of the bromide will be required, especially when it is used in combination with a purin-free dietary. In confirmed cases the administration of the bromide is of little service, and residence in an institution will be necessary, where regular employment, an alteration of work and play, and a suitably arranged mode of life can be employed.

In an appendix is given the purin value in grains per pound of the common articles of food, and also a list of purin-free foods.

This book will be found very useful by the specialist, the general practitioner, and by others engaged in the treatment of epilepsy, because the different points with reference to the affection are well worked out, and the treatment is brought up to date.

The Criminal. By HAVELOCK ELLIS. Crown 8vo. London: The Walter Scott Publishing Company, Ltd., 1910. Pp. xxx + 440. Price 6s.

It is unnecessary to give any detailed notice of the fourth edition, revised and enlarged, of this standard work; nor is it necessary to insist upon the fundamental importance of the book to all medical men

whose professional work makes them responsible for the care of the feeble-minded, whether of the classes commonly found in asylums, or of the classes adjudged "sane" from the purely legal standpoint, and therefore committed to prison for their offences against Society. The author tells us in his preface that when he comes to review the twenty years which have elapsed since the publication of the first edition, he "cannot fail to perceive that the wider problems of criminology are taking on a new orientation. Those that were acute twenty years ago are no longer acute, because there is now an approximation to general agreement concerning them; more especially there is general agreement among those who are entitled to speak with authority that the criminal tends to be marked by a certain mental weakness that usually affects less markedly the intelligence than what we often improperly call the 'moral' character, that is to say, the instinct, feelings, will, and conduct."

The legal attitude to crime, influenced by an obsolete psychology, unwilling to abandon the conceptions of "personal moral responsibility" upon which our penal system is still based, follows but slowly, indeed, in the track of the newer thought. But even here there is progress, for it is impossible that the firm adhesion to traditional views characteristic of law should remain for ever uninfluenced by the vast and increasing output of criminological literature, of which the volume under review gives so admirable a summary. "We now feel," writes Mr. Havelock Ellis (preface, pp. x and xi), "that our treatment of offenders must be as far as possible individualised, and directed not so much towards the crime as towards the criminal. . . . Even in England, attempts—gradual and tentative in our English manner—are now being made, not only to avoid as far as possible the necessity of sending offenders to prison, but also to establish prisons (notably the Borstal Institution) on modern and intelligent lines, although it is admitted that these attempts are still in their infancy. The Penal Reform League . . . performs good work in stimulating and furthering these attempts . . . although as yet even the members of this League are not unanimous in relation to the indeterminate sentence, which, for the individual's benefit, is really as cardinal a principle in the treatment of prison inmates as of hospital inmates, while from the point of view of social protection it is even more necessary."

It must be no small gratification to Mr. Havelock Ellis to feel, as he is justly entitled to feel, that the successive editions of this admirable manual have played no small part in bringing about the gradual formation of sounder conceptions of the duty of Society towards that portion of "social wreckage" which passes by the name of criminals.

M. EDEN PAUL.

Phases of Evolution and Heredity. By DAVID BERRY HART, M.D., F.R.C.P.E. Crown 8vo. London: Rebman, Limited, 1910. Pp. 260. Price 3s. 6d.

This is a rather ambitious little volume, which attempts in a dozen or so brief and somewhat desultory essays to deal with Darwin and

Weismann, Mendel and Mendelism, biometry, mnemism, mutationism, heredity and heredity in disease; to discuss the evolutionary and other philosophical bearings of our knowledge of the life-history and habits of the honey-bee; and to give the author's views on such important and far-reaching topics as modern tendencies to change in the relations between the sexes, and the bearing of the evolution theory on religious belief. The writer endeavours, in fact, to carry too heavy and too miscellaneous a load in too small a wagon. His account of Mendelism, for example, is far too condensed to be intelligible to those who have little or no previous knowledge of the subject; and the same must be said of his account of Semon's mnemism. Since no English publisher has been found enterprising enough to undertake the issue of a translation of Semon's interesting work, *Die Mneme*, this latest attempt to supply a reasonable physiological mechanism for the transmission of acquired characters is practically unknown to those who do not read German; and Dr. Hart would have been better advised to omit all reference to the "mneme," rather than to attempt to convey some idea of Semon's theory in less than four pages.

It is remarkable that anyone writing a modern summary of evolutionary theories, and including in his work a chapter on "Heredity in Disease," should omit all reference to the laborious and thoughtful studies of Dr. Archdale Reid. No English writer has done more to establish such ideas as the following (I quote from Dr. Hart, p. 132): "One curious speculation must not be forgotten. Civilised races are to a certain extent immune to tuberculosis. The time might come when all tubercular infection may be banished from our shores. Immunity must then cease, and accidental infection will wreak its vengeance as it has done among peoples virgin to the bacillus." It is hardly possible that Dr. Hart can have undertaken to write on heredity without having studied Dr. Reid's numerous and weighty monographs. And yet the author of *The Present Evolution of Man*, *The Principles of Heredity*, etc., is not even once mentioned in *Evolution and Heredity*.

On the question of the possibilities of practical advance in the line of eugenics, Dr. Hart takes much the same position as that of most of the speakers in the somewhat sterile discussion at the November meeting of the Association on the papers by Dr. Savage and Dr. Ewart read at that meeting. He writes (p. 141): "Legislation as to marriage on scientific lines would be a misfortune. We know too little to be able to do anything safely." But he agrees with the view advocated by the present writer in the aforesaid discussion, that what will influence the future race will be the slow and sure growth of sane and healthy public opinion on the matter of heredity. And he instances the power of public opinion, guided by knowledge, to effect changes in social practice, by referring to the almost complete disappearance of the habit of public expectoration since the diffusion of modern ideas regarding the infectivity of pulmonary tuberculosis. In the same chapter, and dealing with the same question of deliberate control of human mating, Dr. Hart creates a clever phrase when he tells us that Cupid "is not an archer but a hypnotist."

In conclusion, those who want a succinct, if not very profound,

account of modern views on "evolution and heredity" will find this little volume repay perusal.

M. EDEN PAUL.

Cyclothymia: the Cyclothymic Constitution and its Manifestations (Alternating States of Depression and Excitement) [La Cyclothymie: de la Constitution Cyclothymique et ses Manifestations; Dépression et Excitation Intermittentes]. By PIERRE-KAHN, with a Preface by M. G. DENY. Large 8vo. Paris: G. Steinheil, 1909. Pp. 252. Price 6 francs.

I.

The most useful way of reviewing this interesting and original contribution to psychiatry will be, first, to give a literal translation of the author's own concluding summary of his views; secondly, to amplify from the body of the volume certain details of especial importance; and thirdly, to discuss the bearing of the doctrines enunciated upon the accepted English classification of mental disorders.

"From this study," writes the author (pp. 239-241), "we may draw the following conclusions:

"(1) There exists a psychopathic constitution, characterised by disorders of mood (*humeur*). These disorders, whether intermittent or circular, indicate an unstable mental equilibrium." This is the cyclothymic constitution (*θυμός*, soul, mind, mood; *κύκλος*, a circle).

"(2) In most cases this constitution is hereditary.

"(3) Its manifestations, which generally make their first appearance in adolescence, vary in degree; they may be slight, medium, or severe in intensity.

"(a) The slight manifestations are merely exaggerations of a condition which is almost normal. They seldom come under the observation of the medical man; they characterise persons commonly termed 'originals,' 'eccentrics,' etc.

"(b) The manifestations of medium intensity indicate the stage intermediate between mere originalities of character on the one hand and a true psychosis on the other. It is these manifestations to which the name of *cyclothymia* has been applied by previous writers.

"(c) The serious manifestations have been studied by certain authors under the name of 'periodic psychosis,' and by Kraepelin and his pupils under the name of 'manic-depressive insanity.'

"(4) The manifestations of cyclothymia, whether slight or severe, appear in the clinical form of states of excitement, states of depression, or mixed states. These last are characterised by the co-existence in different psychic domains of excitement and of depression, influencing functional activity simultaneously, but in opposite directions.

"(5) These manifestations are often separated one from another by what are termed 'free intervals.' But before we accept the view that during the free intervals the mind of the cyclothymic is in a state of normal equilibrium, we must subject the patient to a continuous and extremely minute examination of his daily life, for, owing to his temperamental instability, he is subject to variations which are barely dis-

cernible and will easily elude observation of an indirect, remote, or discontinuous character.

"(6) The pathogenic explanation of these manifestations must be sought, it seems, in a primary disorder of affectivity.

"(7) We must distinguish from cyclothymia periods of melancholia or excitement supervening on certain dyspepsias or diatheses (diabetes, dermatoses, herpetism, arthritism, uric acid diathesis, hepatic diathesis)—a distinction not always easy to draw in cases in which one of these diatheses co-exists with cyclothymia. This differential diagnosis is, however, one of importance in relation alike to treatment and to prognosis. For if the mental disorder is due solely to a simple metastasis in the course of some other diathetic disorder, it is the primary diathesis to which our treatment must be directed; and if our measures are judicious and prove successful there is a considerable likelihood that any recurrence of the mental disorder may be obviated. On the other hand, when we have to deal with a cyclothymic manifestation resulting from a constitutional mental taint, curative measures are practically powerless, and relapses may be regarded as almost inevitable.

"Finally, from the medico-legal standpoint, while the graver manifestations of the cyclothymic constitution cannot be overlooked by the expert, this is not true of the slighter manifestations. And yet the latter are no less important than the former—grave and slight alike are the intermittent symptoms of the same latent disequilibrium of temperament.

"It has been the aim of this work to demonstrate the concatenation of diverse disorders, ranging from mere originality of character to unmistakable and profound insanity. In considering all these as the manifestations, unequal in intensity, but identical in sign, of a single well-defined pathological constitution, we believe ourselves to have contributed to the nosological differentiation of certain forms of mental excitement and depression; and we think this is a matter of some importance in relation alike to prognosis, therapeutics, and forensic medicine."

II.

In the preface Deny tells us that there is a congenital state of disequilibrium in which very trifling disturbances, physical or mental, will upset the unstable equilibrium; or the balance may be deranged in the absence of any obvious exciting cause. The alternation of excitement and depression is *irregular*, i.e., the periods are not of definite duration, and for this reason (when we are speaking of the graver forms) the term "periodic psychosis" cannot suitably replace the term "manic-depressive psychosis." Moreover, to speak of "periodic mania" or "periodic melancholia" seems to imply the existence of "simple mania" and "simple melancholia"; and this, in the authors' opinion, is not the case, for, they contend, close observation will enable us to detect a *depressive* stage in mania, and contrariwise a stage of *excitement* in melancholia. It is fifty years since Morel pointed out that "mania and melancholia are symptoms of a single nervous affection, whose ætiological and pathological nature has still to

be determined." Pierre Janet is also quoted to the effect that "the old conceptions of intermittent insanity and of alternating or circular insanity are rejuvenated and transfigured by the theory of cyclothymia and of the manic-depressive psychosis." Finally, Deny refers to a paper read by Auglade three years ago at the Geneva Congress, in which we are assured that "the day approaches on which the simplest psychic neurasthenia and the most acute melancholia will be recognised as constituting merely different degrees of one and the same disorder." But it must not be supposed that the writers wish to make the conception of cyclothymia all-embracing, and thus to deprive it of any nosological value; they distinguish it sharply at the outset from neurasthenia and from hysteria. "Neurasthenia" (p. 12) "is a neurosis of exhaustion, in which the troubles are predominantly physical; hysteria is characterised above all by hypersuggestibility; cyclothymics, on the other hand, are neither exhausted nor suggestible."

In his account of the history of the term, the writer shows that cyclothymia was originally limited to denote the slight forms of manic-depressive insanity or of periodic psychosis. But gradually it has come to be employed in the wider sense of the constitution, the diathesis, underlying slighter and graver forms alike, and characterised by disequilibrium of moral sensibility, taking the form, now of hypothyria (depression), now of hyperthyria (excitement); and the more closely these patients are examined, the more apparent will it become that "free intervals," or "lucid intervals," do not really exist—once the disorder is established (commonly at puberty) dysthymia is permanent. "On what," asks Pierre-Kahn (p. 29), "shall we base a distinction between cyclothymic states [of the more moderate degrees] and manic-depressive insanity. . . . The cyclothymic is aware of his own condition, he has no deliriant ideas, and he is free from hallucinations.

. . . On the other hand, we may say that everyone who without motive, or with insufficient motive, exhibits alterations of mood, appearing and disappearing abruptly, is a cyclothymic. . . . It is not easy to fix a moment at which day passes into night, but the twilight separates them; and in the scala of psychic disorders, cyclothymic states intervene between mental health and manic-depressive insanity."

Clinically, we are told (p. 30), mania is commonly preceded by melancholia, excitement by depression. But it is incorrect to say (as is often said) that the mania is a "reaction" from the melancholia; both alike are symptoms of a disequilibrium of temperament, of the paralysis of some natural regulator. Gaiety and sadness in the cyclothymic are, in fact, the two poles of a single psycho-pathological state. Such alternations of mood are incessant in the cyclothymic. When we speak of an "external cause" of an attack of hypothyria or hyperthyria, we refer merely to the production of an *amplified oscillation* of mood. In predisposed persons, infections often precipitate such amplified oscillations—malaria, typhoid, syphilis, or some other acute illness; the same is true of various intoxications, e.g., plumbism. The toxic conditions dependent on dyspepsia or constipation will also produce "attacks" in predisposed persons; trauma, especially head-injury, is a common exciting cause. In women (and women are more often cyclothymic than men in the ratio of four to

one), the disordered metabolism associated with menstruation, and still more with pregnancy, may cause cyclothymic outbursts. As regards menstruation, we have in the cyclothymic merely an exaggeration of the "moodiness" common in all women at the time of the menstrual flow. Puberty and the menopause are frequently characterised by cyclothymic manifestations, and are apt to be erroneously regarded as the essential, instead of merely the exciting, cause of these manifestations. Excesses of all kinds, especially those of the votaries of Bacchus and Venus, will disturb the precarious equilibrium of cyclothymic patients. There is a close relationship between alcoholism (in the form of "intermittent dipsomania") and cyclothymia; but it is not always easy to determine to what extent the drink-craving is the fruit of a prior cyclothymic disturbance, and to what extent the cyclothymic outburst is the consequence of the alcoholic intoxication.

Cyclothymic outbursts may or may not be signalised by prodromata. When these occur, they may be—(a) *physical*, in the form, for example, of visceral or vaso-motor disturbances; or (b) *moral*, as in the form of malicious misrepresentations of the character and conduct of the near relatives of the patient. Most commonly, however, the onset is sudden and without warning; whatever the *début*, it is the same for each crisis of the same kind in the same patient; and this constancy in the mode of onset is a remarkable character of cyclothymic manifestations.

The slightest forms of cyclothymia commonly remain untreated. The well-known "instability of genius" is usually a cyclothymic manifestation. (But cyclothymics are not *necessarily* geniuses; generally, indeed, they are quite mediocre persons.) The more severe cases (short of manic-depressive insanity) consult usually the neurologist rather than the alienist, and the cyclothymic melancholia is commonly diagnosed as "neurasthenia." It is because the alienist's experience of the cyclothymic constitution is almost confined to the gravest forms (periodic psychosis, manic-depressive insanity), that the description of the cyclothymic constitution has been so largely neglected in the literature of psychiatry.

In some cases the rhythm of the alternations between excitement and depression may be a very rapid one. Deny had under his observation a professor of music, who was always excited one day and depressed the next day: "On the days he is excited, expansive, he goes out all day, giving his lessons. . . . The following day he remains at home, profoundly depressed, commonly in bed all day. . . . The alternation is so perfectly regular that the days on which he will be able to give music-lessons can be fixed for months in advanced." Another similar case is quoted; and yet another, in which the whole cycle, excitement, and depression, was completed every twenty-four hours. [The writer of this review had under his observation in Japan nearly fifteen years ago a man, æt. 70, with chronic arterial degeneration, and mental disorder during the last three or four years of his life. For the last two years there was the most marked diurnal periodicity, so that from 10 a.m. to 5 p.m. daily he was in a state of acute mania; while from 5 p.m. to 10 a.m. he was quite rational, but somewhat depressed. I have no detailed account of his earlier history. My notes merely say: "It appears from the history given by his wife that the patient has

never been a man with a very well-balanced mind . . . subject to violent fits of passion, and morbidly retiring." The family history is not intimately known to me, but I know that a first cousin of this patient (female) has been mentally disordered ; and a niece, now æt. about 50, was under my care last year, as a resident patient, first for acute mania, subsequently giving place to melancholia ; she has now returned home, still in a profoundly depressed state. The diurnal periodicity of the first case was entirely new in my experience ; and the work under review is the only one in which I have found mention of anything of the kind.]

The chapter on diagnosis needs no detailed consideration, since the most important differentiations of cyclothymia—from neurasthenia, characterised by predominantly physical symptoms of nervous exhaustion, and from hysteria, characterised by hypersuggestibility, have already been pointed out. But *some* of the cases described by Raymond and Janet as *psychasthenia* are regarded by the author as belonging rather to the category of cyclothymia. It remains, however, to allude to one profoundly important differentiation. In a recently published posthumous work by the greatest of American humourists (a popular manual of the determinist theory, and Mark Twain's solitary excursion in the realms of philosophy), we find a brief description of two opposed temperaments (*What is Man*, pp. 161-163): "Burgess has always been buoyant, hopeful, happy ; Adams has always been cheerless, hopeless, despondent. . . . No political or religious belief can make Burgess unhappy or the other man happy. I assure you it is purely a matter of temperament. Beliefs are *acquirements*, temperaments are *born* ; beliefs are subject to change, nothing whatever can change temperament." As Pierre-Kahn points out (*Cyclothymie*, p. 145) : "Finally, we must not confound cyclothymics with those who are temperamentally excited or depressed, who remain always in a state of hyperthymia or of hypothymia, from which they never emerge." It is the *alternations* of mood that are characteristic of cyclothymia. But just as the contrasted temperaments above described are inborn, so also is it with cyclothymia ; this latter is a *hereditary instability of mood*. This thesis is illustrated by the writer by means of a number of striking family histories.

The first half of the book having dealt in detail with "Cyclothymic Manifestations," the second half is devoted to an account of the "Cyclothymic Constitution," of which those manifestations are the issue. In the chapter on the pathogeny of the condition, the author asks whether it is anything more than the exaggeration of a normal state ; whether an instability of mood does not exist even among those whose mental equilibrium is as stable as is possible to humanity ? The question is largely one of definition ; Nature makes no jumps ; and just as we proceed by insensible gradations from the less severe manifestations of cyclothymia to the grave forms of manic-depressive psychosis, so we proceed by insensible gradations in the inverse direction, till we reach those whose stability of mood is what we are accustomed to term "normal." But for practical purposes, the variations of mood of a "normal" person may be compared to those of a galvanometer in proper working order, in that they are proportional to the causes acting

on the emotional life; in the cyclothymic, on the other hand, the alternations of the affective life are altogether disproportionate to the exciting causes—like the readings of a galvanometer *falsified* by unknown external causes or by defects in its own internal mechanism. But whereas, in the case of such a galvanometer, we can have it corrected by the skilled electrician (or replace it by a new instrument), the cyclothymic has to make the best of his hereditarily defective affective sensibility. Hence it will be readily understood the author has not much to say regarding the treatment of the condition, and he concludes his brief chapter on this subject by saying, “the treatment of cyclothymia consists merely in the prevention of harmful results for the patient, or harmful social reactions on his environment, and the avoidance of all causes of auto-intoxication or hetero-intoxication.”

III.

When I began this review, I had intended to discuss myself the bearing of the writer's ideas on the accepted English systems of classification of mental disorders (admittedly in need of revision). But, on the one hand, this article is already so long that I cannot now claim further space; and, on the other hand, having dealt with the theory of cyclothymia at such length, I have said enough, I hope, to enable those with far wider experience than my own to take up the discussion at the point at which I leave it. I will conclude, therefore, with reference to one further consideration only. In his *Insanity and Allied Neuroses* (latest edition, p. 37), Dr. Savage writes: “I would insist on my belief that only a certain number of persons are so constituted that they can become insane.” That aspect of the ætiology of insanity is exemplified all through the book I have been reviewing. “Cyclothymics,” in the writer's view, are one great group of the persons “so constituted that they can become insane.” The particular form that predisposition takes in their case is a tendency to peculiar alternations of the affective sensibility.

M. EDEN PAUL.

Part III.—Epitome of Current Literature.

I. Physiological Psychology.

Ambiguities in Primitive Words [*Ueber den Gegensinn der Urworte*].
(*Jahrb. f. psycho-analyt. Forschung.*, 1910.) Freud, S.

This article is written in the form of a review, the subject being a work of Karl Abel, published in 1884. Freud's aim, however, is to show that Abel's philological researches serve to support certain portions of the former's psychology, which have been reached by an entirely different method of approach.

In his work upon the interpretation of dreams (*Die Traumdeutung*), in which dreams are regarded as distorted expressions of “unconscious” mental processes, Freud holds that diametrically opposite ideas often make use of the same symbol in order to present themselves to the

dream consciousness. A similar mechanism was found by Abel in the construction of certain ancient languages. Thus in primitive Egyptian the same word was frequently used to indicate, not only a certain quality, but also its exact opposite—for example, "ken" meant both "strong" and "weak." A large number of words also existed built up on the model of "old-young," "near-far." These did not connote the quality standing midway between the two opposites, but were employed to express one of the latter only; thus "old-young" would mean "old."

These curious facts were explained by Abel on the principle of relativity; an idea is only understood by contrasting it with its opposite, and "strong" only possesses a meaning in virtue of its relation to "weak." In primitive speech, the word expressed the relation itself rather than either of the related qualities. Abel thought that the precise quality meant was probably indicated by means of gestures.

In the later development of the language, a modification of the original word was used to express one of the opposing qualities. Thus while "ken" continued to mean "strong," "weak" was expressed by "kan."

Indications of a similar mode of word-formation can be found in many other languages, both ancient and modern. Thus Latin "altus" meant both "high" and "deep."

Freud considers that the existence of this common character in the construction of dreams and of primitive speech supports his contention that the mode of thought in dreams is archaic and regressive in type.

BERNARD HART.

The Mechanism and Interpretation of Dreams. (*Journ. of Abnorm. Psychol.*, Oct.-Nov., 1910.) Prince, M.

A psychological investigation of dream phenomena. A detailed analysis of six dreams, all occurring in the same subject, was carried out by a specially devised combination method. The patient could be dissociated into several hypnotic states, and these were all utilised in the investigation of the dream. Freud's method of free association in the waking state was also employed in each case. Dr. Prince claims that by the combination of all these methods it was possible to recover memories which could not be obtained by the use of Freud's method alone.

Only a short summary of the general conclusions reached in this research can be given here. The actual analysis of the six dreams does not permit of condensation into the limits of an epitome.

The *material of the dream*, that is to say, the mental elements out of which the dream is constructed, is derived from several sources: (1) Thoughts which passed through the mind in the period immediately preceding sleep—these are generally forgotten during the waking state, but can be recovered by hypnosis; (2) thoughts of the preceding day or even earlier mental experiences; (3) ideas and feelings which have dominated the life of the individual during a long period of time—these latter are apt to appear in a symbolised form, *e.g.*, ideas of the difficulties besetting the patient's life may be expressed in the dream by the climbing of a steep, rocky path; (4) subconscious (co-conscious) ideas of which the personality has never been actually aware.

Analysis shows that every dream has a logical and intelligible meaning—it can be interpreted as expressing some idea or ideas which the dreamer has previously entertained. In the patient studied in this paper “the *motive* of the dream was traced in every instance to strongly organised systems of ideas which were deeply rooted in the mind of the subject, and represented her mental attitude towards her environment or the problems of her daily life.”

The “manifest content” of the dream, the mental elements which actually appear to the consciousness of the sleeper, is really a symbolisation of an underlying thought process which must be regarded as subconscious. This underlying process has been termed by Freud the “latent content.” The subconscious thoughts manifest themselves in consciousness not directly, but by means of symbolical pictures, etc., which are often incomprehensible unless the true dream thoughts have been discovered by analysis.

A dream is therefore to be regarded as an hallucinatory symbolism. Dr. Prince examines other types of hallucinatory symbolism, *e.g.*, those occurring in hysteria, post-hypnotic phenomena, etc., and finds underlying them all a similar mechanism to that discoverable in dreams, that is to say, a subconscious process of which the content of the symbolism is a manifestation.

In several instances certain of the dream phenomena persisted after waking as hysterical stigmata. Thus an inability to speak in the dream persisted as an aphonia. The author concludes that these symptoms are due to the continued existence of the subconscious dream process in the waking state. This suggests that all hysterical stigmata may possibly be symbolisms of hidden thought processes.

Dr. Prince's attitude towards Freud's well-known theory of dreams may be shortly summarised as follows: He agrees with Freud's conception of a logical and coherent “latent content,” producing a “manifest content” which is a distorted symbolised expression of the former. He finds, moreover, evidence of the mechanisms described by Freud as “condensation,” “dramatisation,” and “secondary elaboration.” On the other hand, he does not consider that his researches support Freud's conceptions of “repression,” “censure,” “displacement,” and “compromise”—and he regards “wish-fulfilment” as only one of the possible mental processes which may manifest themselves in dreams.

BERNARD HART.

The Resistance of Forgotten Experiences and the Generic Sentiments
[*La Résistance de l'oublié et les sentiments génériques*]. (*Journ. de Psychol.*, July–August, 1910.) Abramowski, E.

Subconscious life is not inactive but manifests itself by dreams, presentiments, and artistic inspirations. Such sentiments the writer describes as *a-intellectuelle* in contrast with the images which constitute ordinary internal mental expression. *A-intellectuelle* phenomena represent the emotional equivalents of various representations derived from anterior experience. A forgotten experience is therefore often represented in consciousness by an indescribable feeling, which in certain circumstances is capable of reviving the associated image or idea.

Such emotional reduction of experience is best manifested by what the author describes as "resistance."

If one wishes to revive certain images or ideas certain gaps in the revival become apparent. Though the experience cannot be recalled one is conscious of the lacunæ in the revival, and also able to reject any false substitution for the actual experience, which therefore exerts a *positive resistance*. There is, therefore, a *generic sentiment* of non-existing representations which is the cause of the gradual resistance to suggested representations.

This resistance was put to experimental test by means of a series of designs and words. In the former, the subjects were called upon to observe the designs in three ways: (1) By concentrating entire attention on them; (2) by attending to them with interruptions; (3) by perceiving them during mental calculation (intellectual inhibition of the perception). On attempting to reproduce the designs certain lacunæ were observed, and the subjects were first requested to state if they were conscious of anything missing. The resistance itself was then determined by a series of suggestions as to what the missing representations might be. In some cases a *negative resistance* was noted, *i.e.*, the subject showed a feeble positive resistance to false suggestions and offered a strong denial when the actual representation was suggested. The non-recognition of a forgotten fact appears to be due to the emotional discordance of the real memory with its subsequent reproduction. Such is often seen in normal life when objects seen originally in childhood appear entirely different when viewed in later life, because the original "generic sentiment" associated with the earlier experience is completely out of harmony with the later impression of the same thing.

This was confirmed by the experiments. When the cards were viewed with interruptions or calculation, the experience was accompanied by an emotion of discomfort and difficulty which was added to the "generic sentiment" of the experience producing a perversion of the sentiment when the experience was later reproduced. The actual feeling aroused on revival was therefore not the normal generic sentiment which would lead to recognition, but a strange fusion of feelings which produced non-recognition and denial.

Allied to *negative resistance* is the phenomena of *paramnesia*, where the most unlikely suggestions are rejected, and the nearer ones accepted with more or less certainty, and the true suggestion is recognised with hesitation and uncertainty.

The following conclusions are drawn from this research:

(1) Forgotten experiences are psychically preserved by a "generic sentiment," which manifests itself by a positive resistance to false suggestions.

(2) Positive resistance is greater in experiences which were fully represented than in those which, owing to distraction, could not be represented.

(3) The forgotten or unperceived, which was feebly represented and disturbed by an emotion, produces the phenomena of *paramnesia*, and when the intellectual inhibition or emotional disturbance was stronger, it produces the phenomena of negative resistance.

(4) Negative resistance shows that emotional disturbance is conserved in the "generic sentiment" of forgotten experiences, modifying its character as the equivalent of a representation. H. DEVINE.

An Anomaly of Parental Affection [*Une anomalie de l'amour parental*]. (*Journ. de Psychol.*, Jan., 1909.) *Féré, Ch.*

The author points out that parental love may obscure the judgment to such a degree that striking physical or mental defects in the offspring may pass unperceived. Thus the parents of an idiot see manifestations of activity and intelligence in what are actually the simplest biological reactions. Parental love, like the sexual instinct in general, has little to do with the so-called instinct for the preservation of the race: it is an individual fact. Affection is often lavished with the greatest intensity on children the least valuable to the community.

The function of maternity leads to an increased egotism and pride. Any blemish in the offspring becomes a blow to this self-esteem, which at times leads the parents to conceal the defects and refrain from seeking advice. To illustrate this reaction, the writer recounts the case of a lady who for eighteen months after the birth of her child refused to allow anyone but an old nurse to approach it. She was humoured in this strange attitude because she developed a highly nervous condition, and when anyone manifested an inclination to view the infant, she was seized with convulsive movements and facial contortions. At length the child was found to be suffering from amaurotic family idiocy, and the mother in great distress accused herself of deceit, and stated that she dare not say what she knew because she could not bear the shame attaching to the maternity of the child. In this and parallel cases, anomalies by excess of parental love may be as detrimental to the future of the following generation, preventing, as they may, proper education and treatment, as anomalies by default or absence of proper affection.

H. DEVINE.

The Influence of Medicine on Modern Psychology [*Der Einfluss der Medizin auf die Moderne Psychologie*]. (*Zt. f. ärztl. Fortbildung*, Nos. 16 and 17, 1910.) *Moll, Albert.*

If we take medicine in a wide sense so as to include the sciences most intimately associated with it, Moll finds that it has had a preponderant influence in moulding psychology. Not only has medicine served to repress metaphysics in this field, but the methods of psychology owe their present character chiefly to medicine. When physiologists, pathologists, and psychiatrists had shown that every psychic event is introduced by a corresponding somatic process, the way was prepared for the study of the psychic event through the somatic process, and such study became the proper domain of psychology. It is quite true that the opinion of psychologists is divided as to the exact value of the study of somatic processes in psychology. Some regard them as the only method of approach, others (like Lipps) consider that they contribute nothing of essential value, but it is probable that the majority (with Wundt) regard them as, though not the primary object of psychological study, still a valuable aid in controlling introspection.

Still greater has been the influence of medicine on psychological

methods, first by the extension of the use of physiological methods, and secondly by the investigation of the psychic effects of physiological stimuli. This is significantly indicated by the fact that the three great workers who have undoubtedly taken the leading part in moulding modern psychology—Weber, Fechner, and Wundt—all belonged to the medical profession. Wundt, during his long career at Leipzig, has been especially instrumental in furthering experimental psychology, and his distinguished pupils, Kraepelin, Ziehen, and Sommer (again all medical), have, indeed, Moll believes, somewhat exaggerated the practical value of the experimental method. Moll agrees with Jodl that the results of experimental psychology do not correspond with the amount of labour expended in obtaining them.

Even, however, if the experimental method has not performed all that it promised, it still dominates psychology and its results must not be under-estimated. At every point in its progress medicine has been to the front, starting from the preliminary exact study of the physiology of the senses with Young and Johannes Müller, whilst Donders and Lotze were also physicians. Moll deals in turn with each department of psychology, and shows that everywhere medical men are prominent among the leading figures. This is, for obvious reasons, notably so as regards cerebral localisation (since Gall) and the psychological investigation of speech (since Broca). Even, however, among the psychologists who insist chiefly on introspection, the medical element is conspicuous, and Lipps, who is specially averse to the recognition of physiological influence, has yet been strongly influenced by medicine in his æsthetic theories. The study of sexual psychology owes nearly everything to medical investigators. So also with regard to hypnotism, from Braid to Bérillon. The same is true of the psychology of dreaming. As regards the special bearing of psychiatry on psychology, Maudsley long since showed its important influence, while Hack Tuke ("equally a model as investigator and as man") in this respect worked in the same direction. The influence of psychiatry on psychology has, however, been chiefly marked in France. Here Taine was a pioneer (though not himself an alienist), and a distinguished series of investigators have developed the significance of the abnormal in elucidating the normal. The study of genius has also been mainly in medical hands, Moll here mentioning especially Lombroso and Ireland, while the same is true of criminal anthropology and the psychology of childhood.

While the influence of medicine on psychology has thus been enormous, Moll does not wish to imply that it has always been good. Sometimes (as with Moleschott, Büchner, and Vogt) it has introduced an undue materialistic tendency, and led to the notion that the brain secretes thought much as the kidneys secrete urine. It has also been responsible for exaggeration in the over-hasty translation of cerebral facts into psychic facts, as when the average smaller brain of woman has been supposed to imply a permanent intellectual inferiority. There has been a tendency also to over-estimate the practical significance of laboratory experiments; this is especially conspicuous in the investigations of some of Kraepelin's school on fatigue; here Moll refers to Kraepelin's experiments on the effects of minute doses of alcohol.

We must always remember, Moll remarks in conclusion, that the great investigator to whom the introduction of physiological methods into psychology is chiefly owing (Wundt) emphatically warns against the confusion of physical facts with psychical facts.

HAVELOCK ELLIS.

2. Clinical Psychiatry.

Analysis of a Case of Glossolalia [*La Langue d'un Aliéné : Analyse d'un Cas de Glossolalie*]. (*Arch. de. Psychol.*, March, 1910.) Maeder, A.

This case (also published in the *Jahrbuch für Psychoanalyse* for 1910), concerns an inmate in the Burghölzli Asylum. The patient is a locksmith, æt. 41, the son and the brother of teachers, but himself of little intelligence and imperfect education, and with bad maternal heredity. Always delicate and of difficult character, his condition in early adult life was eventually diagnosed as dementia præcox of paranoid variety. He is now calm, is chiefly occupied in cleaning the corridors, and lives like a Trappist, never spontaneously addressing anyone, among some thirty other chronic cases. He addresses long monologues, however, to his imaginary friends and enemies, and fills MS. books with his writings. But no one can understand his language, either spoken or written, though it is easy to recognise French or German words, the latter his native tongue.

Believing that there must be a hidden meaning behind this gibberish, Maeder proceeded to explore it in accordance with the methods of Freud and Jung. The method of "free association" was adopted, each neologism being taken as a starting-point, as well as the patient's description of various objects. With time and patience it was found possible to obtain a fairly rich vocabulary, which re-investigation, at an interval of two years, showed to be constant in meaning.

A kind of myth was then gradually disclosed. Instead of the small insignificant failure in life whom they all knew, the patient was revealed as, in his own imagination, a giant and a hero, strong and magnanimous, a great landed proprietor (it had once been his ambition to be a gardener), a man of science and a politician, adored by women, a supernatural force, indeed, one of the powers of Nature. Of course, so important a manifestation had aroused bitter enemies; these were under the leadership of Satan, so that the patient had become one of the two leading protagonists in a great epic combat between Good and Evil.

The new language, called "Salisjeur," or the organ of nobility (*Salis*, an aristocratic old Swiss family; *jeur*, journal), consists entirely of terms related to the patient's delusions. He regards German as a mere dialect, only fit for common people. "Salisjeur" is the language of good and distinguished people. Much of the vocabulary refers to parts of the human body. The etymology is varied. Maeder deals with it in detail. On the whole, the patient's verbal concepts are wider and vaguer than those in general use; this is an infantile character which has previously been noted as common in glossolalia.

Why did the patient require a special and private language? Maeder replies that it was a necessary part of his grandiose conceptions, of the compensation he had created for his trivial and monotonous existence. Specialists have their technical terms; upper-class people use foreign and esoteric words; a distinguished language is needed to express distinguished conceptions. Unlike many cases of glossolalia (as well as the languages invented by children), "Salisjeur" is not for ends of communication and persuasion; it thus bears the imprint of the patient's malady. It may be added that it is probably typical, to an instructive degree, of many glossolalic manifestations in insanity.

HAVELOCK ELLIS.

Tics in School-children and their Significance [*Les tics chez l'écolier et leur interprétation*]. (*Le Prog. Méd.*, Sept. 10th, 1910.) Paul-Boncour, G.

Tics have frequently been regarded as indicative of degeneracy and intellectual weakness. The author criticises this opinion, which has often been accepted without personal observation or any form of statistical inquiry. He examined 417 children suffering from tics from the points of view of degree of application to work (laborious, average, idle), conduct (docile, average, undisciplined), and intelligence (precocious, average, backward). His results show that in these three respects the children were equal to the average. In a further inquiry as to the frequency of tics according to the age it was found that they tend to be more frequent at puberty, decreasing after the age of thirteen. It would appear, therefore, that the tic may not have such an unfortunate significance in regard to the mental characteristics of the child as has often been supposed. In many cases, it is attributable to inattention and fatigue, and is the result of faulty training, hygiene, and unscientific pedagogy. When tics occur in degenerate types they are apt to persist after puberty and do not yield to treatment. In other children the cure is relatively easy.

H. DEVINE.

Delirium Tremens. (*Le Prog. Méd.*, Sept., 1910.) Baufle, P.

This article is more in the form of an essay than as an original contribution to the subject under review. The history of the disease is followed from the days of Aristotle up to the present time. The writer makes the usual division of symptoms—prodromal and acute; under the former heading come general hyperæsthesia, curtness of manner, and shortness of speech. This phase is followed by the symptoms proper—sleeplessness, illusions, hallucinations, and the essentially active form of delirium. A point to note is that a sharply put question will interrupt, at least for an instant, the incoherent flow of words. It is also stated that the fibrillar movements seen so commonly are, in the case of wine drinkers, most marked in the limbs, but with absinth drinkers the upper part of the body, and especially the tongue, is affected. The fibrillar movements are always in a vertical direction. Differential diagnosis is discussed, but it must be borne in mind that delirium tremens is more frequently a complication of an injury or disease, and as such the onset is masked. Belladonna poisoning, acute mania, or the excited first stage of general paralysis are sources of error. Nothing very new is

mentioned in the treatment; opium and other sedatives, strychnine, digitalis, chloroform, and subcutaneous injections of serum all have their advocates.

COLIN M'DOWALL.

Conjugal General Paralysis [Paralysie générale conjugale]. (Bull. Soc. Clin. Méd. Ment., April, 1910.) (Two papers.) Marie and Beaussart, and Fursac, Rogues de, and Capgras.

These two papers are an interesting and important contribution to the subject of conjugal general paralysis. Both record instances in which syphilis in the husband was followed by the occurrence of general paralysis some years later in both husband and wife. A large number of such cases has now been noted, and it certainly seems to emphasise the important, if not essential, rôle which syphilis plays in the ætiology of general paralysis. Not only so, but it seems also to support the theory of Mott and other writers that a definitely neuro-toxic variety of syphilis exists. It seems impossible on any other hypothesis to explain such a case as that quoted by one of the authors, in which a woman infected five men, all of whom developed either general paralysis, tabes, or cerebral syphilis as a sequel. The two papers and the discussion to which they gave rise, as recorded in this number of the *Bulletin*, will repay study by anyone interested in the subject of general paralysis.

W. STARKEY.

Precocious General Paralysis, Commencing Two Years after Infection with Syphilis [Paralysie générale précoce ayant débuté deux ans après l'accident primitif syphilitique]. (Rev. de Psych., Jan., 1910.) Marchand and Petit.

As a rule an interval of ten to fifteen years occurs between infection with syphilis and the onset of general paralysis. This paper records the case of a young woman, æt. 22, admitted to the Blois Asylum in June, 1908, suffering with mental reduction and excitement. Nothing of note in the family history except alcoholic excess in the father. The patient had enjoyed good health up to the age of nineteen, when she acquired syphilis, which was apparently untreated. Two years later mental symptoms supervened after the patient had been excited by a drunken scene between her parents. She was sent to an asylum, had a seizure, was treated by intra-muscular injections of mercury, and soon recovered sufficiently to allow of her employing herself in the wards. On transfer to the Blois Asylum six months later her state was one of childish exaltation with marked mental reduction. She thought she was very beautiful, highly educated, possessed of money and estates, and about to marry an officer. Her knee-jerks were increased, but her pupils were equal and reacted normally. In July she had a seizure, with resulting paresis of left side. This was followed by an epileptiform attack, and the patient remained in a state of stupor for two days. Mercurial injections were again employed and she improved and was able to resume work in a month. In November another seizure occurred, the right side now being affected, and severe convulsions followed in a week, passing into coma, in which she died. At *post-mortem*, large excess of cerebro-spinal fluid was found. The mem-

branes were milky, highly congested, and adherent especially over left frontal region. There was no atheroma, but granulations were present on floor of fourth ventricle. Microscopical examination of the cortex showed changes typical of general paralysis.

The case might have been mistaken for one of cerebral syphilis, but the rapid progress of the malady, the "global" nature of the dementia, the absence of headache and the failure of mercurial treatment to arrest the disease, together with the microscopical findings, confirm the diagnosis of general paralysis.

W. STARKEY.

Mental Disturbances in Chorea [Sur les troubles mentaux dans la chorée—chorée aiguë et catatonie]. (*Le Prog. Méd.*, July 16th, 1910.) Pélissier, A.

This interesting paper is based on a case of chorea in a young girl, æt. 16, with a bad family history—both parents having been syphilitic, and the father dying of phthisis in an asylum while suffering from recurrent melancholia. The patient had previously suffered from chorea when five years old, but otherwise had been healthy and normal mentally. She was admitted to hospital on March 8th, 1910, with very acute chorea, high temperature, and rapid pulse. The movements persisted for three days, then ceased after a sleep. Next day mental symptoms supervened. At first these were typical of acute confusion—vivid hallucinations of sight and hearing being associated with complete disorientation. This condition persisted until the 17th, when it passed into one of katatonic stupor. She had mutism, *flexibilitas cerea*, rigidity, etc., and was wet and dirty. With the fall of the temperature these symptoms passed off, and by April 4th she had quite recovered. Cultures were made from her blood during the stage of confusion, and a staphylococcus was obtained. The cerebro-spinal fluid showed a lymphocytosis. The author considers it obvious that the chorea, the acute confusion, and the katatonic stupor were here the successive results of the same infective process, acting on a highly psychopathic subject. The katatonia was in all probability an example of the rare "katatonic" form of the exhaustion psychosis. A fairly extensive bibliography is appended.

W. STARKEY.

Digestive Disorders and Epilepsy [Troubles digestives et crises d'Epilepsie]. (*Le Prog. Méd.*, July 30th, 1910.) Rodiet.

The writer points out the connections between gastric and intestinal disturbances (as evidenced by diarrhoea, constipation and gastralgia, refusal of food, etc.), and the frequency and severity of epileptic fits. He suggests that the exacerbations of epilepsy during the catamenia are also due to gastric upset, as all women digest badly at this time, and may show epileptic mental symptoms. His observations were conducted on ten women selected at random from 100 epileptics in the Asile St. Yon. He finds in seven cases indican and scatol, either together or separately in the urine, and regards these as proofs of intestinal putrefaction, and notes the refusal of a meal or meals and even vomiting occurring either before or after a fit, or both.

He points out that diarrhoea by depletion and constipation by auto-

intoxication are probably exciting factors in the production of fits, but does not suggest any abnormal chemical process, but says that ordinary disorders which would produce simple symptoms in the normal will produce fits in those whose nervous system is predisposed.

He quotes Cobham, who asks why furfurol given to dogs and rabbits of the same weight and size produces convulsions in the latter and no effect in the former? Why morphia, under the same conditions of weight and dose, will sometimes produce isolated convulsions, at others true epileptic attacks with typical onset?

Why do not all albuminuric pregnant women have eclampsia? Because there must be a cortical conformation that will allow of the epileptogenic centres being stimulated by the retained toxins.

He gives Chas-Todd (Chicago) treatment: (1) Milk, fruit, vegetables, fish, as diet; (2) hot baths; (3) open-air life; (4) plentiful drinking of fluids; (5) bromide; (6) to keep the bowels always relaxed.

M. A. COLLINS.

Obsessions, Hypochondriacal Phobias and Ideas in a Girl, æt. 10.
(*Le Prog. Méd.*, July 30th, 1910.) Briand and Brissot.

There is double insane heredity, an aunt having similar ideas. For some months the girl has been worried about her health, since her mistress at school in a hygiene lecture spoke of the evils of spitting on the floor; when she arrived home the child said she could feel the microbes escape from a lump of sputum running in her throat. Since this day she cannot hear anyone cough without suffering fearful agony. She is obsessed with the idea that she is going to contract tuberculosis: she undresses if she sees the least trace of dust on her clothes, and will only consent to take them again if her mother pretends to disinfect them; she behaves the same when she sees or hears anyone cough or spit. The morning of the meeting, having heard talk of the cure of cancer, she has for the first time become obsessed regarding this new disease.

Two general paralytics were shown, one of two years' duration, showing late secondary syphilitic lesions, and another of four months' duration showing similar lesions.

M. A. COLLINS.

3. Treatment of Insanity.

States of Acute Mental Disorder treated with Collargol [Etats mentaux aigus traités par le collargol]. (*Rev. de Thérap. Méd.-Chir.*, Feb. 15th, 1910.) Damaye, H., and Mézie, A.

The paper aims at showing the value of colloidal silver in the treatment of mental disorders associated with toxi-infective conditions. It may be most fruitfully read in conjunction with two other papers by Damaye, summarised in the present issue of the "Epitome." Two cases are recorded with considerable detail. The first was a married woman of the working class, æt. 21. She suffered from mental confusion, of which the immediate exciting cause appeared to be a twofold infection, viz., early pulmonary tuberculosis and a streptococcic infection of the genital canal. The streptococcus could be demonstrated in the urinary

sediment and in the vaginal muco-pus, but the genital infection was latent in character. Collargol was administered in pill form, to the extent of two grains daily; the patient was given raw meat. After a considerable period of amenorrhœa, menstruation was resumed four months after admission. The patient's physical condition rapidly improved under treatment, and subsequently the mental disorder completely disappeared.

The second case was one of acute mania in a woman, æt. 23. The mania had been preceded by a melancholic phase with attempted suicide. There was no discoverable family history of insanity. The exciting cause was a latent streptococcic infection of the genital canal. Collargol was given in doses of two grains daily; it had often to be given in milk or in an omelet, being rejected in pill form. During the first six weeks in the asylum, before the administration of the collargol was begun, there was no improvement; this set in from the date of the administration of the drug. As the mania had lasted six months before admission there had been some reason to dread chronicity. The administration was begun in May. Two months later she menstruated for the first time after prolonged amenorrhœa; menstruation henceforward was regular. She was discharged "cured" in the end of October, though slight depression still remained.

We are doubtless limited in our therapeutic powers by the predisposition, by the inborn cerebral constitution, of our patients. But none the less, in many acute and subacute cases of mental disorder we can intervene with success by counteracting the immediate exciting cause—the toxi-infection. The effects of the drug in these cases was displayed, not only by the general improvement in the mental state, but by the results of the leucocyte count. In the present state of psychiatry colloidal silver is certainly one of the best medicaments for the realisation of the primary therapeutic indication—to promote the natural defences of the organism against toxæmia (¹). M. EDEN PAUL.

The Period of Curability in Mental Disorders [La période de curabilité dans les affections mentales]. (La Prog. Méd., June 18th, 1910.)
Damaye, H.

Mental disorders, being manifestations of structural or functional disorder of the brain, have pathological laws identical with those governing disorder of other organs. There are thus two influences in their production: predisposition on the part of the brain, on the one hand; and an immediate cause—some form of intoxication—on the other. The gravity of mental disorders is, therefore, in a direct ratio to the intensity of the predisposition and to the activity of the poison. From this outlook, psychoses may be broadly divided into two main groups: first, those in which predisposition, a congenitally defective brain, is predominantly the cause (characterised by delirium of a coherent type—a manifestation of the "paranoiac constitution"); secondly, those in which the brain constitution is comparatively healthy, whilst an

(¹) The author makes no mention of *argyria*, but the advent of this condition is a danger that must not be overlooked when prescribing a silver preparation internally for prolonged periods. I presume the colloidal forms of silver are also competent to induce the deposit of silver in the skin.—M. E. P.

intoxication, obvious or latent, is the predominant cause, so that the seat of the disorder must be sought elsewhere than in the essential tissue of the brain (affections of a more or less confusional type, with or without deliriant ideas, and usually manifesting visual and other hallucinations). Cases of the former category are commonly chronic, slow and progressive, while the prognosis is unfavourable; in those of the latter category, the comparatively healthy nerve-cell resists the action of the invading toxin, the onset is acute or subacute, the malady, as it were, accidental, and if the source of the intoxication can be discovered and dealt with at an early stage of the affection, it is these cases, above all, in which therapeutic intervention is likely to be efficacious.

Given a certain degree of predisposition, every infection, every intoxication, may give rise to mental disturbance. In the delirium of acute pneumonia, on the one hand, and in the insanity supervening on chronic pulmonary tuberculosis, on the other, we have examples of the respective effects of brief and of prolonged intoxications. The virulence of the products, and the duration of their action, together with the degree and nature of the cerebral predisposition, regulate the course and the gravity of toxic mental disorders. The recognition of the importance of the toxic element in the production of insanity has signalled a great advance in recent years, in our knowledge of, and control of, mental disorder. While predisposition can be dealt with only by the slow process of selection (natural or artificial), the toxic element is, or may be, under our more immediate control.

Mental confusion, with or without actual delirium, is the common early manifestation of the reaction of the cerebral cell to toxic influences. This is the period in which a complete cure is still possible, if the source of the intoxication spontaneously subsides, or can be removed by appropriate treatment. In unfavourable cases, on the other hand, the mental disorder becomes chronic, and passes slowly into irrecoverable dementia. In general terms, our aims, in the cases we encounter in the earlier stages, must be—to discover, and wherever possible to remove, the source of infection; to improve the general state of nutrition; and to stimulate by all the means known to us the natural defences against the infection.

But what is needed above all is that these cases should come under our care at an early stage. When this happens, and when we are successful in the discovery and removal of the true toxic cause of the disorder, we may hope in many cases to prevent the onset of incurable insanity.

M. EDEN PAUL.

The Value of Iodine in Psychiatry as an Antitoxic and Emmenagogue Agent [*Valeur de l'Iode en Psychiatrie comme Antitoxinique et Emménagogue*]. (Rev. de Psychiat., Jan., 1910.) Damaye, H.

In the previous article the writer (Damaye) gives his views regarding the importance of infections and intoxications in the causation of mental disorder. He considers that when intoxication is the main cause of such disorder, the value of agents which assist the organism in its defence against intoxication is indisputable (see also, in this connection,

Famenne's article in the "Epitome" on "Exercise as a Physical Therapeutic Agent," in which exercise is considered from the same "antitoxic" standpoint). In default of specifics, we must endeavour to influence the brain indirectly by promoting the natural defence of the organism against the toxic invasion. The antitoxic influence of iodine, and the part it plays in stimulating the lymphatic system, are now well established. Lunier has treated melancholics and paralytic dementes with mixed bromides and iodides. In the former class of cases he obtained excellent results. Moreover, Lunier states that in this connection iodine is the best of all emmenagogues. We have here, in fact, one of the most remarkable effects of iodine in psychiatric therapy. To the initial stage of acute mental disorders succeeds either a stage of repair or a stage of chronicity. In women, menstruation, commonly suppressed in the initial stage, now tends to reappear; but if amenorrhœa persists, the re-establishment of menstruation is an obvious indication. In such patients the administration of iodides will often restore the menstrual flow, and sometimes in a surprisingly short time. If the mental disorder is curable, this return of menstruation marks the beginning of a manifest and progressive improvement, which is in some cases very rapid. The writer then details five cases: A., æt. 22, acute mania, with gonococcal and streptococcal vaginal infection; B., æt. 30, relapsed general paralysis after remission; C., æt. 27, subacute mental confusion, streptococcal vaginal infection; D., æt. 19, post-puerperal mental confusion, streptococcal cervical metritis; E., æt. 17, subacute mental confusion. In all of these there was amenorrhœa; but the administration of potassium iodide, in doses of 15 gr. per diem, towards the end of the acute initial stage, was speedily followed by the establishment of menstruation. A., B., and E. are said to have been soon "cured"; C. and D. are "still somewhat confused, but much better." It is only at the end of the acute stage of mental disorders, when the affection is tending either towards cure or towards chronicity, that potassium iodide exercises the above-described emmenagogue influence. The re-establishment of menstruation promotes asepsis in the genital passages; and it must be remembered that many acute mental disorders in women are determined by vagino-uterine or utero-annexial infection, overt or latent.

The neutralising influence of iodine in relation to toxins, whose elimination is likewise favoured by the drug, gives a rational indication for the exhibition of this drug in psychiatry. Practice confirms theory in this matter; in numerous cases the writer has observed the regression of mental troubles previously stationary to coincide with the administration of the iodides or of collargol. Not all the cases, indeed, are successful; success is too often limited by the gravity of the original morbid predisposition. But in iodine, employed in the circumstances above indicated, we have a notable adjuvant to the accepted methods of psychiatric therapy.

M. EDEN PAUL.

Lumbar Puncture in Mental Disorders [*La Ponction Lombaire dans les Maladies Mentales*]. (*Gaz. des Hop.*, June 28th, 1910.)
Roubinovitch, J., and Paillard, H.

In the course of a large number of lumbar punctures (more than
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sixty) practised on the insane (about half of whom were paralytic demented), the writers were able to observe certain little-known phenomena relating to the pressure of the cerebro-spinal fluid and the effects of lumbar puncture on the arterial blood-pressure. The puncture was effected in the usual manner, with the patient in the lateral decubitus; the needle was connected by a rubber tube with a mercurial manometer. The measurements of the pressure of the cerebro-spinal fluid obtained in paralytic demented vary according to the mental condition of the patient, and also according to the stage, whether early or late, of the disease. When the patient is calm a pressure of 10 to 15 cm. of mercury is usually found; under the influence of cerebral excitement the pressure increases, and in two patients rose to 35 cm. of mercury. In advanced cases, suffering from marasmus and cachexia, the pressure of the cerebro-spinal fluid becomes very low; all the cases in which the pressure was below 5 cm., and nearly all those in which it was below 10 cm., belonged to this category.

The investigations regarding the effect of lumbar puncture on the arterial pressure were carried out in sixty-four patients, thirty-five of whom were paralytic demented. With the patient in the recumbent posture, in which the puncture was to be effected, the blood-pressure in the radial artery was measured (repeatedly, to obtain a trustworthy figure) by means of Potain's or Sahli's sphygmomanometer, and the pulse frequency was recorded; the lumbar puncture having been performed, the radial blood-pressure and the pulse frequency were again recorded. The most common result was a lowering of the arterial pressure. In eleven cases the fall amounted to from $\frac{1}{2}$ to $\frac{3}{4}$ cm. Hg.; in fifteen cases from 1 to $1\frac{1}{2}$ cm. Hg.; in six cases to 2 cm.; in four cases to 3 cm.; in five cases to 4 cm.; and in 1 case to 5 cm. On the other hand, in five cases there was a rise of from $\frac{1}{2}$ to $\frac{3}{4}$ cm. Hg.; in eleven cases from 1 to $1\frac{1}{2}$ cm.; and in one case 3 cm. To sum up, in forty-two cases out of sixty-four there was a fall in pressure; in seventeen cases there was a rise (usually very small); and in five there was no change.

The interest of these observations lies in the fact that the fall in arterial pressure, found to be the most usual sequel of lumbar puncture, may explain the cardiac failure and fatal syncope which sometimes result from this operation. The detailed reports show that a sharp fall of arterial pressure occurred especially in advanced paralytic dementia and in patients suffering from arterial sclerosis; but that the fall was absent or slight in younger patients (dementia præcox) and those with a healthy arterial system. Those in whom a considerable fall took place were persons in whom the vascular system had lost its normal power of "adapting" itself rapidly to new conditions.

M. EDEN PAUL.

Exercise as a Physical Therapeutic Agent [*Le Travail Manuel Agent de Thérapeutique Physique*]. (*Bull. de la Soc. de Méd. Ment. de Belg.*, April, 1910.) *Famenne*.

Bodily exercise is a therapeutic alterative agent of the first rank, one of which we make too little use, because the indications for its employment are not sufficiently understood. It forms a part of kinesitherapy. Bodily exercise is, of course, a psychic agent as well as a physical—a

method of moral treatment. It has a derivative influence, which may render it of value in cases of obsession ; but its principal use is nevertheless physical. Purely "psychical" troubles do not exist, any more than there can exist a pure "neurosis" devoid of all anatomical basis. The anatomical basis of mental disorder may be functional—a disordered correlation of the cells and fibres of the brain, or a transient disturbance of the metabolism of brain-tissue—or it may be organic, characterised by structural changes in the cells and fibres of the brain. [The writer goes on to discuss in some detail the interaction between predisposition and toxæmia in the causation of mental disorder, on similar lines to those followed by Damaye in another paper in the present "Epitome." He concludes that infections, intoxications from without, and auto-intoxications are profoundly important factors in the causation of psychoses.] Now, in counteracting the toxæmia we have to avail ourselves of the powers of the circulatory system for the removal, destruction, and elimination of the toxins. Bodily exercise admirably provides the requisite stimulation of the circulation. [The writer then deals with some elementary physiological considerations regarding the effects of exercise on the circulation, on nutrition in general, and on the nutrition of the nerve-centres in particular.]

We know also that bodily exercise diminishes hypersensibility, and, finally, that the intellectual faculties are favourably influenced thereby. The deliberate performance of co-ordinated movements involves an education, not physical merely, but also intellectual. Moreover, various recent experimental facts have shown that bodily exercise manifests a special influence on microbic infections. [A brief account of Wright's opsonic method follows. Then the writer passes on to consider Inman's researches at the Frimley Sanatorium, showing that graduated bodily exercise increases the opsonic index in tuberculous patients, and that the amount of exercise desirable for the patient can be clinically regulated by watching the opsonic index (*vide* Inman's original paper, "The Effect of Exercise on the Opsonic Index of Patients Suffering from Pulmonary Tuberculosis," *Lancet*, 1908). Dumarest, Medical Superintendent of the Hauteville Sanatorium, has applied with signal success the same method of graduated exercise ; the Sanatorium, says Dumarest, is "far from being a school of idleness."] The same principles, continues the writer, whose application proves so successful in cases of pulmonary tuberculosis, may be applied also to diseases of the nervous system consequent on tubercular, syphilitic, streptococcic, or other infection. Actual work (digging, transport, etc., in the open air) is preferable to games, in which latter the limit of permissible exercise is readily overpassed. About four hours in all daily, in two or three spells, passing by gradations every three weeks or so from lighter to more severe exercise, constitute the "cure." The writer gives some details of the methods employed by Inman and by Dumarest, but he does not attempt to prescribe the exact application of the same method to cases of mental disorder. The aim of the present article is tentative merely.

"I do not deny," Famenne concludes, "the importance of 'moral' causes—of sad and painful emotions, of boredom, of grief—in the genesis of psychoses and neuroses. By no means. Recognising the importance of causes of this order, I have recourse freely, in the treat-

ment of my patients, to the methods of rational psycho-therapeutics. But even in such cases as these, bodily exercise is a powerful adjunct in the treatment, not only through its moral derivative influence, but also through its antitoxic powers. Grief, for instance, by rendering metabolism sluggish, giving rise to consecutive disorders of digestion, and by disturbing the functions of the vascular and glandular systems, favours the occurrence of all kinds of intoxication. Moral reinforcement, on the other hand, has a favourable influence on all these functions But as regards exercise as a physical therapeutic agent, the aim of my article is, not to give details, but to direct the attention of my fellow-alienists to the importance of the matter." M. EDEN PAUL.

The Practical Use of Common Salt in the Treatment of Epilepsy [Ueber die praktische Verwendung des Kochsalzes in der Behandlung der Epilepsie]. (Neurol. Cbl., Jan. 16th, 1910.) Ulrich, A.

This paper comprises two sections. The first discusses the value of common salt in the treatment of bromism. Von Wyss showed experimentally that symptoms of intoxication could be produced in animals by free dosage with bromides, "taking the form of ataxic disorder, passing on into paralysis, appearing first in the posterior extremities, and then becoming general, with fatal issue." The intoxication was attributed by von Wyss to a deficiency of chlorides in the blood: "the bromides, absorbed from the alimentary canal, and insufficiently excreted by the kidneys, accumulate in the blood, the general salt contents of the blood become excessive, and the osmotic pressure too high; to regulate this pressure an increased excretion of sodium chloride takes place, and the quantity of this salt in the system falls below the normal." In animals, at the outset of the symptoms of bromide intoxication, a rapid subsidence of these symptoms followed the free administration of common salt. When the writer speaks of *bromism*, he does not refer to bromide-acne (the appearance of which depends upon the individual tolerance of the skin), but to severe general symptoms of intoxication—tremor, muscular weakness, ataxia, and diminution or loss of palatal and conjunctival reflexes. In a number of cases of bromism (thus defined) the alarming symptoms, including the ataxia, disappeared very speedily upon the administration of common salt, in doses of as much as 1 drachm thrice daily. He considers that in common salt we have a direct antidote to bromide-intoxication.

In the second section of his paper, the writer describes cases in which epileptic attacks could be *induced* in epileptic patients by the administration of very large doses of common salt (300 to 400 gr. daily). For the theory of the matter he refers to another paper (von Wyss and Ulrich, *Archiv für Psychiatrie*, xlv, Heft 1, p. 221), which is not at present accessible to me. He considers the method of practical value both for diagnostic and for therapeutic purposes (as regards the latter, for the treatment of states of excitement, etc., in epileptics in whom habitual attacks have been temporarily suppressed). He has hitherto had under observation twelve cases of epilepsy (some of true epilepsy and some of Jacksonian epilepsy), in which these large doses of common salt induced paroxysms of epilepsy.

M. EDEN PAUL.

- (1) *Psychasthenia and Psychotherapy* [*Psychasthénie et psychothérapie*]. (*Arch. de Psychol.*, Dec., 1908.) Thomas, E.
- (2) *The Influence of Re-education in a Severe Case of Psychasthenia* [*L'influence de la ré-éducation dans un cas grave de Psychasthénie*]. (*Ibid.*) Castanié, A.

In the first paper, the author recounts in some detail his method of treatment in two cases of typical psychasthenia with abulia, indecision, scruples, doubts, obsessions of crime and the like. Following the teaching of Janet, the writer takes the view that the fundamental defect of the psychasthenic is a diminution of the sense of reality (*sentiment du réel*). This sense is liable to considerable fluctuations, and the complexities of modern life often tend to deviate the individual from a grasp of his environment and place him in positions entirely unfitted to his capacities. Treatment should be directed towards the exercise of this sense of reality which in the psychasthenic has been replaced by inferior and useless mental operations. Such a result can only be obtained by a patient and laborious study of the individual. The life of the patient must be rigidly regulated and a strict daily *régime* mapped out. This is supplemented by frequent therapeutic "conversations" of a re-educative character, calculated to produce indifference to subjective miseries and vain repetitions and arouse attention to objective interests.

The reading is directed, works of imagination being replaced by a study of biographies especially of individuals characterised by activity and energy. The actual interests of the patients are elicited and encouraged and occupations indicated which involve a certain amount of altruism and responsibility for others. By such means it may be hoped that the various psychasthenic symptoms will gradually disappear, and the patients brought to realise the necessity to adapt themselves to the actual facts of existence.

The second paper deals with a somewhat different type of patient, who in early life showed signs of marked moral defect. He was troublesome and uncontrollable, brutal to his comrades, idle and boorish. He was tried in various educational institutions, but his career up to the age of twenty-two was entirely unsatisfactory. He became increasingly violent and impulsive in his tendencies, eventually attempting to kill a servant with a pitchfork. The patient was regarded as an impulsive degenerate with a low degree of intelligence and it was considered that no improvement was to be expected.

He was sent eventually to the personal care of Dr. Castanié, who recognised his abnormalities as being largely psychasthenic in type and not entirely those of a moral degenerate. The patient was not without insight, and was willing to co-operate in any measures for his improvement. By gaining the confidence of the patient and by daily supervision and council, the author was able to restore him to his friends as a useful member of society. While his intellectual status was not raised to any extent, his whole moral outlook was changed and the eccentricities of conduct entirely ameliorated.

H. DEVINE.

4. Sociology.

Some Remarks regarding the Proposed Penal Code for Germany, § 63
[Kurze Bemerkungen zu § 63 des Vorentwurfs zu einem Deutschen
Strafgesetzbuch]. (Psych.-Neurol. Wochenschr., No. xxvi, 1910.)
Heinicke, W.

Dr. Heinicke criticises a proposed amendment of the German penal code. It is suggested that a person should not be punished if, at the time of his offence, he is insane, an idiot, or unconscious, so as to be entirely deprived of freedom of will. On the other hand, if under the same conditions (excluding states caused by alcoholism), free will power is not lost, but greatly impaired, it is suggested that the criminal should be subject to imprisonment under conditions, which take into consideration his mental state, the offence being regarded as "an attempt at," and the length of imprisonment accordingly mitigated.

Dr. Heinicke points out that there is no mental disease where responsibility is only lessened. If a woman suffering from melancholia kills her children, because she believes that they will infect the whole world with typhus, she does not know that she is committing murder, that murder is punishable with death; death is even welcome to her. Should she then be punished for an attempt at murder? Further, a paranoic shoots a person against whom he has delusions of persecution. According to the proposed law he is punishable for attempt at murder, but in Dr. Heinicke's opinion both these cases should be placed in an asylum. This also applies to epileptics, who are liable to commit crimes under the influence of the mental condition preceding or following fits.

Dr. Heinicke advocates the segregation of the criminal insane for treatment solely, and their detention after recovery, should there be a likelihood of a further dangerous outbreak.

HAMILTON C. MARR.

Psychiatry and Work Connected with the Care of Paupers [Psychiatrie
und Fürsorgetätigkeit]. (Psych. Neurol. Wochenschr., No. xxvi,
1910.) Fels, R.

Dr. Fels, who is medical officer of a charitable institution at Frankfurt-on-Maine, states that a large percentage of the begging letters he received come from persons suffering from various forms of insanity. The study of pauperism with regard to insanity is one that lies open for research. Among the applicants for relief there are the misunderstood genius, the young psychopath, who believes that unless he receives support the world will be deprived of a great painter, literateur, actor, or singer, and cases also of persons who have always been normal, but who are, in the course of development, nipped by an insanity almost imperceptible in its onset.

HAMILTON C. MARR.

The Action of Alcohol on the Development of the Function of the Testicle
[L'Azione dell'alcool sullo sviluppo e sulla funzione dei testicoli].
(Riv. Sper. di Freniatria, vol. xxxvi, fasc. iii.) Toddi, Carlo.

The author is specially concerned in this article with the influence of parental alcoholism on the offspring. He has conducted experi-

ments, since February of last year, on fowls. The animals were of two classes—young cocks four to five months old, and adult cocks of eight months. The cocks were subjected to a progressive chronic intoxication of ethyl alcohol, the dose varied from 10 to 20 c.cm. of 20 *per cent.* solution to 40 c.cm. of 10 *per cent.* solution. The animals showed daily, and a little after the ingestion of the alcohol, phenomena of intoxication, frequently acute and transitory. Some of the fowls, especially the younger, died after a few days through intolerance. Some died, after advanced experience, of gastro-enteritis due to the local action of the alcohol.

The testicles were examined histologically after hardening in formalin. The sections were stained with Delafield's iron-hæmatoxylin and with eosin.

The author makes the following deduction from his experiments :

(1) Acute alcoholic intoxication does not injure, in any manner demonstrable by common methods of observation, the functional activity of the male sexual glands.

(2) Chronic ethylic intoxication in adult cocks only rarely determines a true arrest of spermatogenesis ; it generally causes a simple slackening in the functional activity of the testicles—that is to say, a state of torpor of the organs.

(3) Chronic ethylic intoxication in young cocks, with the organs of reproduction in course of evolution, only rarely arrests the complete development of these organs. In such cases the evolutionary process and the subsequent functioning are not modified, though it frequently determines, as in the adults, a functional torpor.

(4) Many anatomico-physiological and anatomico-pathological facts have been discovered relating to the hypothesis that alcoholic poison acts on the evolved and non-evolved sexual organs indirectly, and especially through the intimate functional relations that exist between the brain and the testicular organs in the sense of Ceni.

HAMILTON C. MARR.

The Modern Exaggeration of Sexuality [*Die Moderne Uebertreibung der Sexualität*]. (*Arch. f. Kriminalanthrop. u. Kriminalist.*, Bd. xxxix, 1910.) Nâcke, P.

Dr. Nâcke has himself done much excellent work in sexual psychology and has always been ready to support serious workers in this field, so that the protest he here makes against recent exaggerations carries more weight than if it came from one less entitled to an opinion. In every field, he remarks, progress is made by wave-like movements of action and reaction. In no region is this so marked as in medicine, as every history of medicine bears ample witness. Until recent years one of the most neglected fields of medicine was that of sexuality. There was an obstinate effort to ignore its plainest manifestations, and a stupid resolve not to study them even when found. Under the leadership, however, of several distinguished persons a new discipline was gradually established, and all the phenomena directly or indirectly connected with the sexual impulse became recognised as proper objects of scientific study. But already this movement is experiencing the

inevitable result of long and undue neglect ; it is running into excess, and there is a tendency in some quarters to discover sexuality in every manifestation of the individual and the collective life alike. It is scarcely necessary to remark that in this matter Näcke frequently refers to Freud (though by no means wishing to reject his work entirely), and especially to some of his followers, who have even out-run the master in this respect ; but he more especially deals with Wulffen, who, on the legal side, has done much to familiarise lawyers with modern psychiatric ideas, but now, Näcke believes, is imperilling his influence by joining in the movement which seeks to explain everything by sexuality.

Näcke proceeds briefly to consider the various leading departments of human activity in turn, pointing out that none of them can be explained exclusively by sexuality. The origin of the family, for instance, is based as much on economic as on sexual motives. In the establishment of religion fear may more properly be regarded as primitive, motives drawn from the sexual sphere being only secondary. Many other motives appear to combine with the sexual to constitute the impulse to art, and the impulse to science is still more independent of sexuality, if, indeed, intellectual work and sexuality are not antagonistic to each other. It is the same when we consider the manifestations of the individual life, and it is quite unjustifiable to assume that manifestations of agreeable emotional tone, whether in the infant or the adult, are necessarily sexual. (In this connection Näcke refers to auto-erotism as sexual emotion directed towards the individual himself as its object ; this, however, is a confusion for which certain of Freud's disciples, though not Freud himself, are responsible ; sexual emotion directed towards the self is Narcissism, a special variety of auto-erotism, the latter term having been devised to cover all the cases in which spontaneous sexual emotion occurs, independently of the accompanying mental state, which in many cases may be quite vague.) At various points of detail it is possible to question the views set forth by Näcke, but there is no good reason to dispute his final conclusion that "the influence of sexuality on the individual, on art, science, religion, etc., must not be exaggerated." It is very large, indeed, but to find it everywhere is merely to run the risk of provoking a period of reaction in which it will again be found nowhere.

HAVELOCK ELLIS.

In Memory of Cesare Lombroso [Zu Cesare Lombrosos Gedächtnis.]
(Reprinted from the *Monatschrift für Kriminalpsychologie und Strafrechtsreform.*) Kurella, H.

The death of Lombroso in October, 1909, deprived us of a notable investigator. He was a man of manifold activities—philologist, philosopher, mystic, anatomist, anthropologist, neurologist, psychiatrist, sociologist, statistician, and social reformer—always original, always heaping up his observations mountain-high, always paradoxical, a bold formulator of hypotheses, a man whose titanic efforts in the fields of inductive research were interwoven with, and often paralysed by, his intuitive grasp of analogies. His methods were often unorthodox, the fruit of his own improvisation ; hence to the slaves of "system," the

erratic genius of Lombroso has seemed at times tainted with charlatanism.

He was born at Verona in 1835, as an Austrian subject. He belonged to a Venetian mercantile family, long settled in northern Italy, but tracing its descent from a colony of North African Jews. In 1859, when Italy was engaged in throwing off the Austrian yoke, Lombroso had experience as an Army surgeon; and when the fighting was over he retained this position, until given charge of a small asylum at Pavia in 1864. He also became private tutor at the University, and soon had a flourishing private practice. During the ensuing autumn he was engaged in researches into the ætiology of pellagra, then and now the great endemic scourge of the Lombard peasantry, an incurable and slowly fatal disease, of which the initial symptoms are cutaneous, the later symptoms neural and mental. He believed himself to have proved that pellagra is a form of sitotoxism (cereal food-poisoning), due to the consumption by the peasantry of the inferior qualities of maize which form their staple diet. [Lombroso's theory of the ætiology of pellagra slowly gained credence; and till last summer, although the essential nature of the poison was still in dispute, hardly anyone doubted that in one way or another it was conveyed into the human body through the instrumentality of maize. Kurella, writing less than a year ago, regarded this theory as now beyond dispute. Recently, however, it has been asserted that pellagra belongs to the same group of diseases with malaria, yellow fever, sleeping-sickness, etc., that it is a protozoal infection, transmitted by the bite of an insect. Within the last few months Sambon claims to have proved that the intermediate host is the biting-fly—*Simulium reptans*. However this may be, Lombroso's theory no longer holds the ground unchallenged.] By the publication of his views on pellagra, Lombroso, unforeseen, challenged powerful interests—the interests of the great landlords, whose rents and the work on whose estates were threatened by an attack on the wholesomeness of the staple food of the peasantry. Great as is the outcry when the established creed of the highly placed is touched, still greater is the outcry when their economic interests appear to be imperilled. Lombroso was boycotted, and not by the great landlords only, but by their dependents, the medical and academic circle among whom Lombroso earned his living. His experiences for a good many years ensuing were those of Dr. Stockmann, in Ibsen's *An Enemy of the People*—the man who discovered that the waters of a rising watering-place were typhoid-infected, and who, instead of hushing up the matter, proclaimed the news from the housetop. Lombroso's private practice was gravely affected, and for years he had a hard struggle for mere existence.

In 1876, however, the publication of his first small book on criminology (*L'Uomo delinquente*, Milan, 1876) gained for him the position of Professor of Forensic Medicine at Turin, and gave him a fresh start in life. His views speedily received recognition and endorsement from Garofalo, Ferri, and others; and the unmistakable influence of Lombroso's ideas can be traced in Kraepelin's treatise, *Die Abschaffung des Strafmasses* ("The Abolition of the Apportionment of Punishment"), published at Stuttgart in the year 1880. Lombroso's original studies in

criminology and criminal anthropology were the principal occupation of the next twenty-five years of his life. His final work on this subject, a summary of his ripe experience, dealt with "The Causes and Prevention of Crime."

In the closing years, and especially in the last few months, of his life, we find that Lombroso displayed a tendency to pessimism, but this contrasts with his earlier optimism, and his doctrine of the "born criminal" was in no way based on a pessimistic view of life; as regards social reform, including criminology, he was decisively optimistic; the weak, the sick, and the degenerate were regarded by him at once with the objectivity and with the philanthropy of the "born" physician; it was only in his moral valuation of genius, and in his judgment of the great condottieri and conquistadores of modern commerce and industry that he displayed any severity.

He had an intuitive belief, and considered also that he had furnished inductive proof, that "born criminals" or "criminal natures" exist; hence his deduction that "punishment" in the older sense is a pure futility; the first aim of criminal law must be the well-being of Society, the second the improvement of the criminal. But true "criminal natures" are incapable of improvement, and Society cannot be safeguarded by transient measures against men who are permanently dangerous. Thus, he was a convinced advocate of the view that the inadequate powers of natural selection ought to be supplemented by the deliberate selection (exclusion from reproduction) of anti-social individuals. With this end in view he was ever the fearless champion of the death penalty, which he designated "estrema selezione."

The proposition, "criminal natures exist," was amplified by Lombroso by another—"and these born criminals exhibit characteristic anatomical and physiological stigmata." Of all departments of his life-work none has been more hotly contested than this, and the time is perhaps not yet ripe for a final judgment on the matter. But when we compare the absolute sterility of normal anthropological craniometry with the data of criminal anthropology, the latter is seen to be signalised by an abundance of interesting discoveries and by deductions of genuine scientific importance. What is the first claim of Lombroso's most violent opponents? They tell us that crime as a social phenomenon cannot be characterised by physical (bodily) peculiarities. But after all, is this true? Is it not possible that men's fitness for a particular economic and social environment may depend upon constitutional predisposition? And may not the existence or non-existence of this constitutional predisposition be manifested by the possession of certain physical (bodily) peculiarities? At least, the possibility has never been disproved.

If we wish to do justice to the life-work of Lombroso we must not omit the study of his personality. The loss of wealth and social position that ensued upon his espousal (in connection with the "pellagra campaign") of the cause of the Italian peasantry, finally stilled in him the desire for outward success and restored to him the leisure in default of which he could never have collected so enormous a mass of anthropological material, have sustained his incessant polemic controversies, or effected the systematic arrangement of his data. Thus his life attained a uniformity such as rarely belongs to the life of a successful

physician, and while he remained outwardly modest and unpretending, always ready to help others, both by word and by deed, he continued to be the intellectual father of new and ever new sensational hypotheses. Although in innumerable controversies he unweariedly defended his ideas, his zeal was always on behalf of the ideas themselves, never to gain material advantages. Lombroso never sought for personal gain from the conceptions of whose value and importance he was so firmly convinced, and which came to him, as it were, intuitively. Indeed, his principal strength lay in intuition, *in his ready grasp of the essential*. His theories of intuitive genius lay stress upon certain analogies between intuition and epileptoid states, and the great reverence paid by him to truth may possibly have led him at times to under-estimate the powerful (although not always fully conscious) intellectual activity which necessarily paves the way to every happy discovery.

No attempt can be made here to demonstrate the extent and the importance of Lombroso's contributions to Italian culture outside the domain of anthropological researches. From his house in Turin and from the circle of thinkers, officials, and artists who assembled there, there radiated a powerful influence, and at times it seemed as if the conscious intelligence of Italy was centred here at work. And unceasingly a manifold receptivity and activity found the unity and the energy requisite for their concentrated influence in the fiery spirit of Lombroso, in whose ardour the most heterogeneous elements were fused.⁽¹⁾

M. EDEN PAUL.

5. Asylum Reports.

London County Council Asylums.

The rate of increase in population again appears to be on the descending scale, that of 198 last year being the smallest since 1902, 490 being the average for twenty years. The balance between the two sexes has shifted to the extent of *2 per cent.*, the males having died in lessened proportion, while the female death-rate has not sensibly altered. The accommodation at the Epileptic Colony is to be increased by eighty-eight beds, as it has been determined to receive all suitable cases in the first instance at this department instead of, as heretofore, passing them through other asylums.

Dr. Maudsley's munificent offer still awaits consummation on account of the old difficulty of site, one site having been selected, but withdrawn at the last moment by the vendors. At his suggestion a deputa-

⁽¹⁾ Dr. Hans Kurella, of Bonn, whose eloquent tribute to Lombroso's memory I have briefly epitomised above, had a personal friendship with the deceased investigator of many years' duration, and is himself a writer of European reputation in the field of criminal anthropology. His best-known work is *Die Naturgeschichte des Verbrechers* ("The Natural History of the Criminal"), published in 1893. He is also joint author of an important periodical, *Grenzfragen des Nerven- und Seelenlebens* ("Border-line Questions of Nervous and Mental Life"), several issues of which during 1910 were given up to an account of the life and work of Lombroso. This has been translated from German into English, and is now in the press. The title will be *Cesare Lombroso, A Modern Man of Science*.—M. E. P.

tion, with the engineer, visited Dr. Kraepelin's clinique at Munich to study the design and other particulars required for a mental hospital. As to the Council's own idea of a receiving house, application has been made to Parliament for the necessary powers, for one house at first, by way of experiment. We suppose that this application has met the same fate as most beneficial schemes, as no result has been mentioned. When we think of the obstruction to real improvement that is made by politics we must be very thankful for the Pensions Act.

The report draws attention to the difference in procedure between the cases of persons certified under Sect. 13 (persons not wandering at large but not properly cared for), in which two certificates and an order by a specially appointed justice are needed, and the cases coming under Sect. 16 (persons wandering at large and alleged to be lunatics), in which only one medical certificate with an order by any justice is required. It is thought that on the score of the interests of the patient the one should have as much protection as the other. We confess that we do not see the point, for in either case one medical man can give a perfectly safe opinion, while perhaps in cases where a grave allegation of neglect or cruelty is made, the truth either way of the allegation is more safely constituted by the double examination. The existing difference between the certification of paupers and private cases is largely nowadays a matter of sentiment, and because a wandering lunatic may be a private case eventually, we do not see that the medical side of the question needs more attention than would be the case if he were a pauper.

An interesting table is given of the monthly applications for beds of each year from April 1st, 1904, to March 31st, 1910, with an average for each month. By this it appears that the admissions from May to September are in excess of the average, those of May, June, and July being markedly so. The total applications have fallen steadily year by year from 4373 in the first year to 3769 in the last. No explanation of the seasonal curve is offered. Our own observation of the converse fact, that faltering cases, especially in the first half of life, tend to make a push and recover as the spring comes on, may be taken with the facts recorded above as suggesting that at that season of the year there is more than the usual activity in settling the delicate relations between the purely physical and the subtler mental elements of biology, failure in which settlement tends to make people go under at the recurring crises of life.

The Committee in every possible case constitute a patient to be a private patient if there are sufficient funds to defray the weekly maintenance; Mr. Macmorran, K.C., as far back as 1899, gave an opinion which has left no option. The Committee has been criticised by one of the Metropolitan Boards of Guardians in this matter, the latter saying that the Committee has no such right unless the patient pays at the same time his share of landlord's expenses for housing, etc. This appears to be rather dog-in-the-mangerish, for, as the Committee points out, the Guardians can get nothing of the latter part, which in the end goes to the relief of the ratepayer. As to the principle itself, apart from law and finance, justice would seem to support the practice, since a man who pays his shot is entitled to a preferential position, such as it

is. The building and incidental charges for its upkeep are provided for the public good, and for the public benefit arising from segregation of those who would otherwise be a source of trouble and danger to the community; and therefore his occupation, often unwilling, of a portion of it is not a matter on which a charge could be necessarily fastened on a patient, though if he can contribute in respect of it, so much the better.

The Committee has scored on the Guardians in the matter of settlement. Being satisfied that some patients really had no settlement in London, it made inquiries of its own into more than 1,000 cases, with the result that up to the time of report it found no less than 57 cases which were adjudicated and removed. These 57 cases had in the matter of maintenance alone cost the ratepayers about £21,000, of which under the law only £1,600 has been recoverable—the loss from insufficient inquiry thus being £19,000, without taking into account the capital charges. The annual gain by removal of the cases is about £2,250, plus more beds. This action has, the Committee reports, infused more activity into the Guardians.

The Pensions question is, happily, now nearly dead, but a lengthy statement of the whole position shows what immense care and trouble was taken by Mr. Keene when it was in process of final settlement, and, in case there should be any lingering doubt as to the principles, this statement may advantageously be consulted. The actual scheme adopted by the Council seems to be as liberal as might have been expected from past records. A very valuable opinion from Mr. Macmorran has been obtained and is set out, dealing with the various difficulties and uncertainties arising in connection with “aggregation” and “continuous service.” This opinion has been advantageously used in one case to our knowledge, and may well be used by others.

Reports of Commissioners.

Banstead.—The report commences with a generous recognition of the work of Dr. Jones and his staff. The visiting Commissioners endorse the remarks of their colleagues, who animadverted on the large and unwieldy wards in the older part. They suggest reconstruction, or, if this is impossible, they advise their dividing up by glass screens.

Cane Hill.—Here, too, are remarks of a satisfying character on the kindness shown to patients, and the thankfulness therefor expressed by the patients themselves. It is recorded that in 144 cases of death (46 being from general paralysis) no bed-sore was found.

Claybury.—Again the Commissioners speak approvingly of the evidence of kind relations between the staff and the inmates. They attribute the absence of grievances and complaints in a great measure to the regular visitation of the patients by members of the Visiting Committee. On the other hand, they rightly condemn the neglect of one Board of Guardians who have never visited their patients, though nearly one hundred of their patients are confined here. They mention the accurate knowledge that Dr. Robert Jones has of his patients. As

we have said before, in our eyes this knowledge, and the close attention which necessarily underlies it, redound more to the credit of medical officers than economy. We feel sure that the notice given to such matters by Commissioners is a just and efficient acknowledgment of conscientious endeavour, made under drab and depressing conditions.

Medical Superintendents' Reports.

At *Banstead* the Matron gives demonstrations in invalid cooking all the year round, which are very well attended. This, of course, is in addition to the ordinary nursing instruction.

Bexley.—Dr. Stansfield goes a good deal into heredity and family histories. He gives a flagrant, but not, we fear, a very uncommon, instance of perverse and useless lying by relatives in this direction. A father, on the admission of his daughter, stated on the inquiry form that there had been no breakdown in his family, in spite of the fact that another daughter was at Bexley at the very time, and a brother was known to be in another London asylum. He gives some interesting statistics of multiple insanity in families, but these no doubt are embodied in Dr. Mott's work, to which we shall refer later. The following are truly horrifying: A father, three sons and one daughter; father, mother, son; father, mother, son and daughter; three brothers and two sisters; four brothers; and so on. Sterilisation is still a great desideratum in his judgment.

At *Cane Hill* the charge nurses have been given a separate mess as an experiment, similar to a sergeants' mess in the Army. The result has been very satisfactory, the status of these officers having been thereby raised and discipline improved.

Claybury.—Dr. Robert Jones truly says that the term "recovery" is used in an elastic sense. Thereby he personally denotes the attainment of a fair mental integrity at the time of discharge. Two women and three men, general paralytics, and five epileptics were so regarded on discharge. He says that in these cases no one would deem true recovery to have occurred, but they are able to support their families and to exercise their citizenship creditably. He also thinks that on our side we have as much reason for the use of the term as have special and general hospitals. This is probably quite true, but in the case of the upper classes one's legal responsibilities may be more coercing than medical considerations. A female patient was admitted suffering from leprosy. Dr. Robert Jones is fortunate in having some rich neighbours who are kind enough to entertain parties of patients in their grounds, and others who voluntarily aid mental convalescents. We make a note of this kindness since there is plenty of evidence of a really beneficent feeling towards the insane, if only it can be got to a start. Concrete instances of success, which can be pointed to, may encourage others who are willing.

At *Colney Hatch* Dr. Seward speaks very favourably of the new villas for young male patients. They help convalescence and improve the

health and behaviour of those who have to remain uncured. The same is reported of the six new villas for female patients. With regard to employment he can report that all the boots worn by the patients are made in the asylum, and it is expected that all the cloth and cording required for them will also be made there.

At *Hanwell* Dr. Baily expresses a not uncommon opinion on the difficulties of the new handbook. He thinks that when it is put into the hands of probationers it inspires terror and confusion. Possibly this is the case if no guidance is given at the time. We believe that it is not uncommon for medical superintendents specifically to point out those portions which should first be studied by novices. It might well be considered by the Education Committee whether it should not itself issue a graduated syllabus or guide to the study of the book. In justice to the committee which produced the handbook, it should be understood that the advanced information was not expected to be assimilated by all, but was intended to facilitate further training of those who were capable of, and desired improvement beyond mere qualification for the certificate. It is the Education Committee and not the handbook which settles that qualification. We are glad to note that the striving after the certificate, even if not successful, tends, in Dr. Baily's opinion, to secure a better quality of nursing, and, after all, that is the aim of the system.

At *Horton* Dr. Lord regrets that our nomenclature should have so little meaning as regards prognosis. Is prognosis, as we are able to make it, sufficiently certain to afford a sure basis for classification in any direction whatever? In the last number we drew attention to the recoveries assigned by Dr. Bevan-Lewis to cases coming under headings usually associated with confirmed hopelessness, and we ventured to deprecate too much attention being given to classification as a guide to forming prognosis. We fear that it would be found to be a broken reed in practice and scientifically impracticable. Dr. Lord presses strongly that syphilis should be constituted a notifiable disease, chiefly on the ground of the health of the sufferer himself. Certainly, both on this ground and the possibility of infection of others, a very strong case might be made out. But we fear that the deeply rooted and weird sentiment that every man or woman may do what seemeth good to them with their bodies, as long as they keep within the statute law, would prevail over common-sense. Dr. Pearn has made a close examination into the fertility of 100 consecutive admissions of married female, and of 100 male similar cases. The former have borne 345 living children, in addition to 24 still-births and 36 miscarriages, while the latter have procreated 357 live children. In both series male children predominated.

At *Long Grove* Dr. Bond has worked some figures, valuable in themselves and peculiarly interesting at the present time, in relation to the "eugenic" risks attached to the discharge of patients from the asylum. His figures and deductions are so intricate that we reproduce his statement in full.

Danger of relapsing cases.—Much has been said in recent years as to the danger of cases discharged from asylums, not so much to the present community as—from a “eugenic” point of view—to future generations. The belief seems widespread that it is from these patients the insane members of the next generation largely spring, and, in conformity with this belief, drastic measures to limit the fecundity of such persons have not only been advocated but, abroad, even put into practice. Without desiring to throw cold water on any attempt to curtail the burden of lunacy, one feels bound to deprecate some of the measures proposed until they have for their basis indisputable evidence of their probable efficacy, and this, it is submitted, is far from forthcoming. Family histories are notoriously difficult to obtain, but certain data, such as those I have summarised concerning the 70 not-first-attack female cases, are fairly easily obtainable. Their scrutiny seems to me to suggest that “the case against” them is yet far from proven:

Sixty-four not-first-attack female cases.—Time has not permitted me to obtain corresponding information from the male admissions. In six of the females sufficient information was not forthcoming, leaving a basis of 64 for consideration. In nearly one-third (18) of these the initial attack of insanity did not take place until the involuntal period and after child-bearing was impossible; so that at once almost a third become removed from the sphere of eugenics. Of these, while 13 had given birth to a total of 79 children, the remaining 5 were childless. In 46, or slightly over two-thirds, the initial attack had occurred either in early life or in the period of maturity; of these, 7 have been childless and are now past child-bearing, other 4 who had a total of 13 children prior to their first attack have had none since and are now past the possibility of such; 15 have been hitherto childless, but their ages still permit the possibility of a family; 13 of them are, however, single; 3 had a total of 14 children prior to their first attack, and though they have had none since, their ages do not preclude the possibility. This leaves only 17, or one-quarter of the total, who have had offspring since their initial attack of insanity; these had a total of 18 children prior to the first attack and have had 49 subsequently, and 8 of them may now be regarded as past child-bearing.

It is, then, apparent that of this collection of 64 recurrent cases only 46 were amenable to any “eugenic” measures; that in 11, or one-quarter of these, parentage in the ordinary course of nature became impossible; thus leaving only 35 whose capability to reproduce mental disease might have been frustrated. My experience goes to show that only 12 *per cent.* of insane persons have a brother or sister also insane. So that even allowing that each one of these 35 will ultimately be the mother of an insane person (a by no means likely contingency), and also bearing in mind that only some 10 *per cent.* of the insane appear to have an insane parent, it can be deduced that 39 is the maximum insane progeny which might, perhaps, have been prevented by the application to some 46 potential mothers of the measures suggested; but that for every 39 cases so prevented there would probably arise from other sources 351 insane persons, whose origin these measures would not avert.

I am aware of some possible fallacies in this line of argument; my object in quoting such figures is to venture to counsel caution and the necessity of much more convincing facts before committing ourselves to the support of measures which may prove very barren of hoped-for results.

He regrets a prevailing tendency to the simple reproduction in Tables C4 and C5, dealing with the ætiology in recovered cases, of the facts as stated in the admission register, pointing out that an intelligent adjustment of factors on later knowledge would probably increase the true assignment of heredity. In his own case he thinks that another 10 *per cent.* was added by further inquiry during the residence of the patient.

For two years now he has treated his male tubercular cases in the open air, winter and summer, without the least difficulty. In regard to the dangers run from bovine tuberculosis, he states the alarming fact that no less than 41 *per cent.* of the young cows selected for purchase were

returned as not being able to pass the test. It is somewhat suggestive that in spite of the knowledge that strict inquiry is made about each cow, the percentage of rejections is increasing, it having been 36 in the preceding year as against the rate stated above.

Pathologist's report.—Dr. Mott sets out a goodly array of work done and being done. One might well doubt whether in any other department of medicine, or, indeed, in the whole of medicine itself, there is a greater bulk of scientific and practical inquiry going on than is to be found at Claybury and other asylums all over the kingdom. On the latter side—the practical—the outstanding item is the careful and thorough attempt which is being made to follow up the family history in relation to mental weakness of a multitude of inter-related cases in the London asylums. This entails much personal devotion and a large expenditure of time and trouble to get at facts. It will become scientific when the deductions are drawn. One thousand eight hundred and thirty-four cases have been thus followed up, each having some connection with at least one other of the number (in two cases there were groups of six members of single families). Each case is, or has been, in one of the asylums of the area. Many cases have been rejected from the inquiry because there has been no living member of the family in one of the asylums at the time of inquiry. Dr. Mott has obtained the services of Dr. Edgar Schuster to make an independent analysis of the card-returns of the cases. The time has not sufficed to make a thoroughly exhaustive investigation of all the material, but Dr. Mott, with the corroboration of Dr. Schuster, is able to give the following important results of the inquiry :

The forms of insanity which are most hereditary—

Before this question can be discussed it is necessary to call attention to the fact that the terminology varies in different asylums and at different periods. Nevertheless, the facts clearly show that periodic insanity, recurrent mania, recurrent melancholia, alternating insanity, and manic-depressive insanity are different names employed for the same mental defect which has this common character of periodicity of sanity and insanity, consequently these cases are discharged and re-admitted a varying number of times. Dr. Schuster had available for examination records of 319 pairs of parents and children ; of these the children in 69 cases suffered from periodic insanity. Of the 69 so affected, 28, or 40·6 *per cent.*, had parents similarly affected. Of the remaining 250 offspring with forms of insanity other than periodic only 41, or 16·4 *per cent.*, had parents suffering from periodic insanity. Moreover, his statistics show an even stronger resemblance between brother and brother or brother and sister than between father and mother and son and daughter.

The statistics also show a marked tendency for delusional insanity to run in families, and that the correlation between the offspring is more strongly marked than between parents and offspring. The same applies to dementia præcox and imbecility ; likewise, in a varying degree, to other forms of insanity, but there is no indication of general paralysis running in families.

The age at onset of the first attack coincides with periods of physiological and psychical stress, *viz.*, puberty, adolescence, and the climacteric period. The onset and recurrence in a large number of cases are coincident with childbirth, and in some instances we have been able to trace insanity in the offspring born at those periods.

Another interesting point is that there is a great tendency for two children of the same parents to become insane at the same period of life, but this is what we should expect with dementia præcox—the insanity of adolescence.

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Another fact stands out prominently in these statistics, and that is, the much greater incidence of transmission from parents to offspring through the female side, as the following figures show :

Analysis of the 752 instances of two of a family.—Father and son, 44 instances; mother and son, 51 instances; father and daughter, 58 instances; mother and daughter, 104 instances; two sisters, 130 instances; two brothers, 87 instances; brother and sister, 136 instances. Female with grandfather, 1 instance; male with grandfather, 1 instance. Females with grandmother, 6 instances; male with grandmother, 5 instances.

Collateral.—Female with uncle, 12 instances; male with uncle, 11 instances. Female with aunt, 33 instances; male with aunt, 11 instances.

The report of Dr. Schuster which leads up to these conclusions is a most able document, and one which will repay perusal as being a good example of the scientific method of dealing with recorded facts.

Dr. Mott's report contains also an account of another investigation of prime importance.

With a view to ascertain whether there is any association between auditory hallucinations in the insane and chronic inflammatory changes in the middle ear as evidenced by the presence of adhesions between the ossicles and sclerotic changes, an investigation has been commenced by Dr. Gordon Wilson and Dr. Candler, which will be continued until a sufficient number of cases has been examined to furnish reliable data. The results obtained up to the present show that out of 66 cases examined *post-mortem*, in 72 *per cent.* changes of a marked or slight degree can be found in the middle ear. In 52 *per cent.* of the cases examined the changes were well marked, and were sufficient to have caused deafness of greater or less degree, and in 64 *per cent.* of these well-marked cases there was a history of previous auditory hallucinations of a severe and persistent character. It was also found that the cases in which there was only very slight evidence of adhesive changes in the middle ear were either free from auditory hallucinations or were subject to mild or transient attacks. In about 7 *per cent.* of the cases there was a history of hallucinations without any visible evidence of disease of the middle ear. Although the number of cases so far examined is too few to justify any definite statements, there is evidence that chronic adhesive changes can be found *post-mortem* in the middle ear of a large percentage of the insane. It would appear also that in about 50 *per cent.* of the cases with chronic changes in the middle ear there are associated well-marked auditory hallucinations, and the less evident the trouble in the middle ear the less evident the auditory hallucinations appear to be. The work on this subject is being continued.

Engineer's report.—Mr. Clifford Smith gives some interesting particulars concerning the consumption of coal, both steam and house. He takes for the purpose of contrast three asylums, Claybury opened in 1894, Bexley opened in 1902, and Long Grove opened in 1909, and he selects the summer quarters of the year for comparison, since the heating machinery is not then in use and fuel consumption is not influenced to any great extent by weather conditions. In each case the asylum had its full complement of patients. We work his figures of consumption into the following percentages per patient for the six months :

Claybury (1894)	1'06 tons
Bexley (1902)	'51 "
Long Grove (1909)	'24 "

The average consumption per patient through the whole year in all the asylums works out at 1'204 tons.

These remarkable and progressive results he attributes partly to improvement in methods and partly to more efficient apparatus. As

to the former he gives the result of a test comparison made in certain wards at Claybury, which are fitted with open fires in all cases, some having in addition steam-heaters, the others having, also in addition to the open fire, warm air apparatus. Steam won handsomely at a considerably reduced cost. These facts may be of use to those who have to provide means of warming new asylums, and also to others who may be seeking to improve existing arrangements.

With regard to the water supplies, we learn that the pumping of water at the Central Station cost 9'075*d.* per 1,000 gallons, the cost including all repairs, rates, etc., and wages, but exclusive of interest on capital. The charge for water supplied by the Epsom authority amounts to 10*d.* per 1,000, but this of course would include allowance for capital. But the asylum water-charge provided for softening. It would be interesting to know what difference in price is caused by the latter process.

Statistics.—As before noted, these take up a large proportion, at least two-thirds, of the enormous bulk to which the report has grown. One naturally thinks of what is to be done with this mass of valuable information. To let it remain unused will be monstrous. It will be impossible for one brain to attack it properly, and there rises up in one's mind the possibility, not an unmentioned one, of the Association appointing a committee of congenial souls for the purpose of dealing with this and other reports. Time would doubtless be taken to settle on a proper scheme of procedure, but when this is once settled working out details would not be so tiresome. Should such a course be taken it would be necessary to limit the powers of the Committee by special resolution, lest those who already toil so hard should be subject to any fear that no fresh tables would be recommended.

Mr. Keene, with the help of a member of his staff, Mr. Wyett, has made a beginning of dealing in a general way with some items which will be of interest both to his committee and generally. He has prepared a tabulated statement of the movement of the asylum population from 1831, the year when the first asylum was opened, down to the present year. For the purpose of comparison this is divided into four periods—from 1880 to 1889, from 1890 to 1899, from 1900 to the end of 1909, and from 1831 to 1909. The lower death-rate among the males and the higher recovery-rate among the females are outstanding facts, but the proportionate accumulation of females, which is mainly the result of their recoveries not keeping pace with the male deaths, is not now so marked as it was some years ago. The number of cases having over *ten years' residence* at the end of each of the above periods shows that the females have all through contributed to that number more than the men have done. The percentages on total population for the last three decennia are (omitting fractions)—

						M.	F.	T.
1889	.	.	.	.	.	26	31	29
1899	.	.	.	.	.	17	21	19
1909	.	.	.	.	.	44	45	45

The bound upwards in the last period is very striking, and, one might say, disheartening. It appears as if failure to recover is the chief cause of the increase in long residence, as will be seen by the figures appended. The proportions given are the number recorded in either

event, death or recovery, on the total number of patients treated, to the date specified from the actual opening in 1831. Bearing this method of calculation in mind, the decrease in recovery is descending faster than is suggested by the rates themselves, since the better results in the earlier years help to make the later figures look less unsatisfactory.

	Recoveries.			Deaths.		
	M.	F.	T.	M.	F.	T.
1889	25	25	25	31	23	27
1899	24	26	25	27	20	23
1909	20	23	22	29	24	26
1831-1909 . . .	28	32	30	37	30	34

Mr. Keene emphasises the lessening of the proportion of *entrants* to *exits* by a table showing, in four-year averages, the combined *exits*, the rates in the case of both recovery and death not being those ordinarily used, but those of records of these events to total average residence. He shows that the average of 1890-1893 was, both sexes included, 21.26, while in 1906-1909 it had fallen to 15.28.

We find on reference to Table A2 that the average admission-rate for the first four years was 2,962 and for the last 4,048. So that decreasing rate of relief is felt over an increasing area of contribution—a double disadvantage. Facts like these, stated on precise terms, should go far to make inquirers think twice before they develop rash theories of increasing occurrence from increasing residue.

Mr. Keene notes a decrease during the last three years in the proportion of *direct* cases. Also that no less than 582 of the admissions were of more than twelve months' duration. He says that this large number, which is not confined to the last year only, must complicate the question as to relative frequency of occurrence, and he thinks they show that the mass of unregistered insanity, which has been so consistently drawn upon for the past twenty years, is by no means exhausted.

Over 54 *per cent.* of the admissions were married, while ten people who were married were returned as insane from birth or infancy. In regard to the factors of the insanity in those who have recovered, Mr. Keene sets out in a table the proportions which each ætiology has contributed in making up the total of recoveries. Perhaps we can get some hint from such a table as to the least dangerous ætiology. But of course no scientific conclusions can be based on anything but a special following up of each case; so that we could say so many individuals came in with this ætiology of insanity, and so many of those same individuals recovered. We venture to suggest to Mr. Keene that he might very usefully, on a future occasion, give us something of the kind, not, perhaps, so accurate as that which will result from individual record, but something that would be substantially correct, and would become more correct each year. If the totals of recoveries in the specified forms in C4 for each year, since the commencement of the new tables, were added together, form by form, we should get a useful average. Then if the totals of corresponding items in B7 were similarly added together we should get a fairly accurate basis of the ætiological incidence. Say that three years' tables are available, the addition of all three would cover nearly every case that recovered inside of three years from admission—the residuum of longer durations are almost negligible as practically abnormalities

and very small in number. Each year they would less and less disturb the calculations. If one were in a position to say that for ten years past the average number of admissions in ætiological series is so much, and for the same term of years the recoveries in the same series were so many, we should be in possession of practical truth, which cannot be obtained by the contrast for one year of B5 and C4. We should add, perhaps, that Mr. Keene makes no claim whatever to any special value for his tabulation. But having said all this we are tempted to make a tentative comparison between these two tables for 1909 with the help of Mr. Keene's calculations.

Ratios of the Occurrence of Certain Factors of Mental Disease to Totals respectively of Admissions and Recoveries.

	Admissions (ourselves).	Recoveries (Mr. Keene).
Mental stress (of both kinds)	29.20	38.81
Alcohol	22.7	23.95
Insane heredity	29.3	29.19
Puberty and adolescence	6.7	7.08
Alcoholic heredity	8.7	9.44
Privation	5.2	5.07
Syphilis, acquired	10.7	4.46
Epilepsy	8.0	3.58
Cardio-vascular degeneration	9.7	5.16

In both calculations all cases having no assignment of factors have been eliminated. The totals under consideration are 3,012 and 1,144 respectively. The proportionate relation of these two totals is 2.63 to 1.

If this mode of calculation could in any way be accepted as speaking the truth, we might say that, in regard to the first five ætiologies, the chances are about three to one against recovery, assuming that we can feel sure that no other factors have contributed to the attack. As to the last three, as might be expected, the continuity of the factor entirely alters chances. It is suggestive that such an easily remediable factor as privation does not furnish more recoveries.

Longevity under mental trouble seems to be increasing year by year. At present 64 *per cent.* of the males and 67 *per cent.* of the females have a duration exceeding five years, as shown by Mr. Keene, while there are 294 males and 324 female cases of over forty years.

We trust that Mr. Keene will continue each year to furnish such useful material.

Other points we have found on casual examination to be interesting. We note that this year every form of insanity has been used by one or other of the superintendents, but, of course, particular forms are more adopted in one asylum than in others, this arising not from the prevalence of the form so much as from the individual views of reporters, to which Mr. Keene also adverts. The *volitional* class is represented by 22 cases in 3,931 admissions, being divided as impulse 9, obsession 5, and doubt 8. *Moral insanity* only provides 5 cases. *General paralysis* was found in 334, of which one-sixth were females.

Melancholia in all its forms considerably exceeded the varieties of *mania*, this balance being in strong contrast with the figures for all England :

	London County.				Commissioners' Report.		
	M.	F.	T.		M.	F.	T.
Mania . . .	315	491	806	.	3,040	3,766	6,806
Melancholia . .	385	770	1,155	.	2,368	3,801	6,169
Total admissions	1,776	2,155	3,931	.	10,511	11,302	21,813

Acute delirium occurred 10 times, equally between the sexes, females being slightly less than the ratio for all England, where nearly two-thirds were females.

Alternating insanity was found in 13 cases as against the 53 in England. There is probably more doubt, or rather, difference of opinion, as to the proper rendering of this term, even among experts, than is found in regard to any other class of mental disease.

Delusional insanity runs it hard, however, in want of preciseness. In London it occurred in 538 cases, 199 being systematised, and 339 of the other form. In England the comparative numbers were 1,551, 705, and 846. The much greater proportional frequency in the former area will be noted. In the group of *confusional insanity*, *stupor*, and *primary dementia* there is much inter-asylum variation, the last not occurring at all in some. Whether this is from pure accident of incidence or from want of belief may be doubted.

Attention is arrested by the number of *dements* admitted. They were 277 (senile 116 and secondary 161). Turning to the report of the Metropolitan Asylums Board we find the comparative figures to be 279, 262, 17. Adding these together we get senile cases 378, secondary cases 178, total 556 on a total admission of 4,711. In the *remainder of England* these classes furnished 1,208 of the 17,892 admissions. Thus the burden of mental decrepitude seems to fall heavier in London than elsewhere. Outside the large class of labourers, general and undefined, a term as easily adopted as that of medical student when trouble comes, the most numerous among the *occupations* of the male admissions is that of commercial clerks. We have drawn attention to this fact before as one that needs investigation. They number 84. As we have not got the number of commercial clerks in London we cannot give a ratio of incidence similar to that given by the Commissioners for all England, but we can get a line by comparing the 84 out of 1,490 direct admissions in London with the 382 out of 10,511 of all England—the comparison showing 1 out of 17 in the first case and 1 in 27 in the latter case. The fact that out of 61 first admissions 12 occurred between the ages 25–34 and 23 between 35–44 would tend to show that clerical work had no special danger in the adolescent period, and that the incidence of the disease is not the result of accumulated wear and tear. The calling of warehouseman furnished 21 male cases, a ratio of 1–70, while in all England the ratio is 1–150. As in the Commissioners' return for England this calling stands highest of all, viz., 47·1 in 10,000 of the total population, it seems that the occupation is an especially dangerous one in the Metropolis. Female commercial clerks and typists, though the numbers are considerably smaller, show the same relative excess as in the

case of the males, and 5 out of the 7 first admissions broke down just at the same age periods as given for the males. In the females domestic service seems to be more dangerous, *qua* insanity, in London than elsewhere, the ratio being in the former 1 in 5 admissions and in the latter 1 in 6. The ratio per 10,000 of the total population of England is stated by the Commissioner to be 14.7. The principal age-period of incidence is 25-34, furnishing one-sixth of the cases, though the periods on each side are well represented. Forty, or about one-ninth, broke down between the ages 15-19. In both sexes fashioners of apparel are heavily represented in comparison with England generally.

The ætiology of the admissions presents no great departure from the ordinary, the main causes being those generally met with. Nor is there any outstanding feature among the deaths. Comparative examination of age-periods, civil state, etc. is much too serious an undertaking to tackle in a review of this sort, but no doubt the vast accumulation of definite facts will aid, when properly analysed, in the elucidation of the natural history of the disease. One can but commend warmly the industry that has got it together and set it out in usable form.

Metropolitan Asylums Board's Asylums.

Referring to the Commissions on the Feeble-minded and on the Poor-law, the committee state that they feel themselves to be passing through a prolonged period not favourable to initiative or progress. They, with justice, complain that the latter Commission, reflecting the attitude of the former Commission, after bearing testimony such as "the Metropolitan Asylums Board have efficiently discharged as a central body the task entrusted to them," are inconsistent enough to seek the setting up of a new and experimental authority. It convicts the Commission of a silly inaccuracy in stating that the cost of three hospitals, with from 3,000 to 6,000 inmates, amounted to a million pounds, whereas that sum represents the total expenditure of the Board for all purposes.

The following extract contains views of importance in the question of the Board's work and of interest to those who scent Socialism everywhere. Dealing with the minority reports, the Board says :

Whether any scheme for the break-up of the Poor Law, however attractive in its delineation, can in the end denude the country of its pauperism, whether any real co-ordination of relief work is attainable when the different branches of it are controlled by different committees, each so strong and important as to be semi-independent of one another, may well be doubted. To take only one instance, the suggested enlargement of the powers of education committees to include the maintenance of large numbers of children divided by the finest line, in point of poverty, from multitudes of those still the subject of parental effort and care, may well be viewed with the misgiving that such a provision would prove all too attractive, and, in removing whatever remains of the "stigma of pauperism," set up in its place a readiness to regard "public assistance" of an eleemosynary character as the normal rather than the abnormal condition of life, and so tend to sap that personal independence and undermine those foundations of self-help and self-reliance upon which the strength of a nation is built.

Opposed to this view is that expressed in the main report, that we consider that the many and subtle problems associated with public assistance, especially when it is a family rather than one individual that requires rehabilitation, cannot be

solved by the simpler process of sending off each unit to a separate authority for maintenance and treatment. What is needed is a disinterested authority practised in looking at all sides of a question and able to call in skilled assistance. If this be granted it is difficult to see what useful purpose is to be served by making the proposed body a statutory committee of another authority, rather than a separate Board, dealing direct with the Government department concerned, and comprising members able and willing to devote themselves to their own sufficiently onerous duties without being of necessity required to take a share in the administration of manifold and vast municipal services.

The Committee claim the benefit of Dr. Downe's opinion—

The device of a statutory committee is at best but a makeshift of representative government; the great county or county borough councils are already overburthened with duties, and the minor municipal bodies can claim no such status as would entitle them to a dominant control of public relief.

And speaking of its own independence in looking after the interests of the rate-paid it says :

It is not easy to see how, under any other plan in London, can that invaluable personal interest of the members of the authority in the work and the care of the inmates be maintained, or the no less valuable strong and systematic financial control of the central government department, which are features of the existing system.

The Board have done the following kindly action to the medical profession :

Representations having been made to the managers that hardship was inflicted on candidates for the Diploma of Public Health by the regulations which required them to reside in the Board's hospitals as clinical assistants, further facilities have been afforded to candidates by instituting, experimentally, at two of the hospitals, classes for instruction in hospital administration without requiring candidates to be resident thereat.

We are glad to note that the Local Government Board has issued an order directing that in future the stewards of the various institutions shall not rank as principal officers. The effect of this is that there will be one only recognised head of all the Board's establishments, with general authority and control of the entire staff. This is quite as it should be, at all events in asylums.

Leavesden Asylum.—Dr. Elkins reports that the character of his admissions has changed markedly, many being under twenty years of age, and only 20 out of a total of 155 were over fifty years. The visiting Commissioner records that the permission for attendants to live in the village is still attended with benefit, and has tended, in Dr. Elkins' opinion, to improve the class of candidates for the service.

At Tooting Bec the attendants, the nurses, and the domestic staff have each been provided with a recreation court. The three grades have combined to form a recreation club, which organises recreation, both indoors and outdoors, for the patients and themselves. This appears to us to be an excellent idea.

Darenth.—The population is just under 2,000 ; of these no less than 1,079 are being usefully trained in various trades. Dr. Rotherham reports that not only is there more work done, but the character of it improves fast ; very little of it can be found fault with. He calls, with justice, for an immediate and large increase of the shops to meet the

circumstances. One hundred and twenty-nine female patients are taught the Swedish physical drill. One hundred and twenty males are likewise taught the Army physical drill. He reports that two of the boys in the carpenters' shop are able to construct tables, wardrobes, and other large goods with a finish comparable with trade goods. A very fair amount of orders for other institutions are executed. With regard to wood-chopping the boys in this shop are the most "happy-go-lucky" boys in the Colony, who have to work hard to keep pace with the demands for bundles of firewood. He finds that the more work put before them the greater energy is displayed. The tinsmith's shop is a very trying one on account of the din, but the goods turned out are far more lasting than those that are bought machine made. In the female needle-room the sewing machines now number thirty-five, 125 hands being employed. Not a single complaint has been made about the quality of work in any of the 37,294 articles sent away. The value of the work done in this department came to £5,326 last year. The wood-choppers turned out just under £1,000 of bundles, and the upholsterers £2,427; the brush department worked to the value of just under £2,000. We give these figures to show that serious business and not counterfeit employment is aimed at and carried out. As regards each of the twelve departments the account is duly debited with the instructors' wages and rations, but no charge is made for the rent or upkeep of the shops themselves. And it has to be remembered that work is not the only consideration here; there is much need for medical skill as well. The remarks of the Visiting Commissioner (Dr. Needham) fully appreciate what is done in both directions.

The patients were suitably and neatly dressed, were generally in good health, and looked in all respects well cared for. Expressions of discontent with their detention and treatment were extremely rare, and there was the air of general contentment which is so conspicuous in imbeciles who, in well-managed institutions, are able to be usefully employed under conditions of kind and modified discipline. This was, of course, especially manifest in the workshops, which are now so prominent and successful a feature in the training of the patients here. Their concentration has much simplified their administration, but it is unfortunate that their capacity is so limited as to lead already to such a considerable degree of overcrowding as could not fail to be obvious. In these shops, which include those for brush-making, painting, tailoring, shoemaking, bookbinding, basket and mat making, joinery and upholstering, a large amount of really efficient work is being done, and with great pleasure to those engaged in it. It was valued last year at upwards of £7,000, and left a profit of £2,000, a careful profit and loss account being kept in the case of each trade. These results are of striking interest as an object-lesson with reference to the future care and training of imbeciles on a wider scale than has hitherto been attempted in this country. This industrial training is not, however, practised to the exclusion of ordinary simple scholastic education, or of the physical development and discipline which result from regular systematised drill.

Although this asylum is now devoted principally to improvable cases, there are still here many helpless patients needing constant care and attention, and I noticed with pleasure many indications of the kindly manner in which these are given them. It is highly creditable to the nursing of the sick that although I saw many quite helpless children of faulty habits, who either lay in bed or in canvas chairs continuously, not one was suffering from a bedsore, and I was assured that no bedsore existed on the body of any patient who died since the last visit.

Children's homes.—The splendid work done by the Board for children has been the subject of remark frequently in these pages, and it is

depressing to read that the shadow of the coming change, which does not come, is seriously hampering the endeavours that are made to cope in practical and, we may say, scientific method with the intricate problems of child-sin and defect. In the case of remand homes and other institutions for youthful offenders, there is a prospect, under the provisions of the Children's Act, of the London County Council at once taking on itself the duties laid on them by the Act, thus relieving the Board of a responsibility which it acknowledges but cannot fully discharge as matters stand. The arrangements that were made by the Board for these purposes have met with just appreciation from competent judges. With regard to the homes for the mentally defective children, the report of the Commission on the Feeble-minded has to some extent paralysed the good intentions of the Board. Still, as they are now, they form a very valuable object-lesson to those who, whether in London or the provinces, must sooner or later assume responsibility. It is hoped that our own Committee on Medical Inspection of School Children may find material in these homes for making suitable recommendations.

With the exception of the largest home at Witham, which is attended by Dr. Rotherham, all the smaller homes continue to be under the capable supervision of Miss Turner. She is able to report that, on the whole, she discerns improvement from the patient training that is given. Some of the elder girls make hats so well that the staff buy them for themselves. Some girls show a real aptitude for making mats from designs of their own, the less capable children sorting the wool, under direction, and shading the "thrums" for them.

The system of giving weekly pocket-money works in this home most satisfactorily. Fear of losing half the weekly penny is said to act as a strong deterrent. The selection of a small article for purchase with the penny or so at their disposal gives the girls a quite disproportionate interest in the world of realities about them. This interest is proving a most valuable educational means. The same may be said of their occasional visits to places of entertainment, which have had the effect of making the girls mentally much brighter. The smallness of the number in this home enables the life of the girls to be much more nearly that of normal children. This is one great reason why these small homes must, in the nature of things, be more effective in producing the desired results than larger institutions can be.

Witham.—Dr. Rotherham pushes work and training as strenuously here as he does at Darenth. He hoped for 3,000 yards of sash-cord being made—he has got over 5,000. It is work that can be well done by the least mentally capable and physically strong among his inmates. Drill, Army and Swedish, are much employed. He finds that efficient drill is one of the most important factors in obtaining a good moral tone in the institution. There can be no doubt that this is found to be the case outside, where lads' brigades have been formed. The band of twenty-four performers has much improved in tone and reading. It has played at a flower show and was accorded much praise.

Statistics.—These continue to be drawn up strictly in the form adopted by the Association. Much trouble must be caused by the large inter-asylum circulation, especially from Tooting Bec. But the latter cases

are carefully separated, so that the directs can be easily considered by themselves.

We note that in B₅, among the 776 direct admissions, primary dementia was recorded fifty-eight times. We find also seventy-seven of the same class among the residue, and that four out of the sixteen recoveries had suffered from this variety. This last fact, together with the recovery of eight suffering from senile dementia, would point to the conclusion that the term "dementia" does not always, and to all observers, imply incurability. For ourselves we cannot entirely accept the incurability of dementia, since it would leave unclassified some cases, not common, where there is an amount of want of judgment, and possibly of intellect, who recover both after a period of protection from the consequences of their mental want, without the manifestation of any definite mental or physical special symptoms, such as one needs must see in either acute mania or acute melancholia or other form of active insanity.

The questions of age, civil state, etc., as stated under our review of the county statistics, are matter for deliberate weighing by an expert. Though they are smaller in comparison with those contained in the forementioned statistics, they are undoubtedly of great value, and necessary as a scientific complement to the latter when a study is made of the insanity of the whole area of London.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING of the Association was held in the rooms of the Medical Society of London, Chandos Street, W., on Tuesday, November 15th, 1910, Dr. John Macpherson, President, in the Chair.

There were present the President and the following fifty-two members: Drs. H. T. S. Aveline, W. H. Bailey, G. F. Barham, Fletcher Beach, C. Hubert Bond, David Bower, John F. Briscoe, W. Brooks-Keith, J. Carswell, James Chambers, M. A. Collins, M. Davis, J. Francis Dixon, R. Langdon-Down, Thos. Drapes, D. Edridge-Green, F. Ashby Elkins, C. T. Ewart, T. D. Greenlees, H. E. Haynes, C. K. Hitchcock, David Hunter, T. B. Hyslop, G. H. Johnston, John R. Lord, H. G. Macartney, H. G. MacBryan, W. Macdonald, H. J. Mackenzie, John Macpherson, W. F. Menzies, James Middlemass, R. Mornington, Hayes Newington, L. R. Oswald, M. Eden-Paul, O. P. Napier Pearn, S. R. Phillips, Wm. Rawes, G. H. Savage, G. E. Shuttleworth, J. G. Smith, R. Percy Smith, J. G. Soutar, J. B. Spense, T. Stansfield, R. H. Steen, R. J. Stillwell, W. H. B. Stoddart, J. A. Topham, William Vincent, and Fred Watson.

Visitors: Mr. M. Crackenthorpe, K.C., Sir Horatio Donkin, Miss Dendy, Dr. W. G. Boys Johnston, and Dr. J. Samuel, F.R.S.E.

Attendance at previous Council meeting: Drs. Adair, Aveline, Bond, Bower, Chambers, Dixon, Drapes, Hunter, P. W. MacDonald, J. Macpherson, H. J. Mackenzie, Middlemass, Miller, Hayes Newington, Oswald, Shuttleworth, Percy Smith, Soutar, Stoddart, Taylor, and Vincent.

The minutes of the last meeting, having already been printed and circulated in the Journal, were taken as read and were duly confirmed.

CONGRATULATIONS ON THE RECOVERY OF THE PRESIDENT.

The TREASURER said one or two members had intimated to him that it would be appropriate for the Association to express its satisfaction on the return to health of the President, and he was very glad to take upon himself the function of doing so. Members were always sorry when the President became ill, and always glad when he recovered. That was not only so now, but those who were at the Edinburgh meeting would remember all his kindness and thought directed to making the welcome a hearty one; therefore the news that the President was not only ill, but very ill indeed, came as a shock to them on personal grounds. One was scarcely prepared for such news after seeing him in good health so recently. He congratulated the President, in the name of the meeting, on his restoration to health.

The vote was carried with acclamation.

The PRESIDENT, in acknowledging the meeting's congratulations, said he was quite unprepared for any such kindly vote. He thought his illness was quite outside the legitimate business of the Association, but as it had been introduced he could only thank the proposer for his kindness, and the meeting for having so cordially passed the resolution.

The following candidates for election were duly ballotted for and approved:

Brander, John, M.B., Ch.B.Edin., Assistant Medical Officer, London County Asylum, Bexley. (Proposed by T. E. K. Stansfield, G. Evans, and G. N. Bartlett.)

Gilmour, Walter, M.B., Ch.B.Glasg., Pathologist, Gartlock Asylum, Gartcosh, N.B. (Proposed by W. O. Parker, Leonard D. H. Baugh, and J. E. Middlemiss.)

Kennedy, Lt. Col. Arthur (R.A.M.C.), L.R.C.P.&S.Irel., Royal Victoria Hospital, Netley. (Proposed by B. H. Mumby, G. H. Barham, and C. Hubert Bond.)

McDougall, William, M.A., M.B., B.C.Cantab., M.Sc.Vict. (Wilde Reader in Psychology, Oxford University), Foxcombe Hill, Oxford. (Proposed by George A. Auden, H. Hayes Newington, and C. Hubert Bond.)

MacKenzie, Marion Ellen, M.B., Ch.B.Edin. (Medical Examiner for the Board of Education), 7, The Valley, Scarborough. (Proposed by Margaret B. Dobson, G. F. Barham, and C. Hubert Bond.)

Martin, William Lewis, M.A., B.Sc., M.B., Ch.M.Edin. (Certifying Physician in Lunacy, Edinburgh Parish Council), 56, Bruntsfield Place, Edinburgh. (Proposed by Geo. M. Robertson, Alex. W. Neill, and R. Gibson.)

Oliver, Norman H., M.R.C.S., L.R.C.P.Lond., The Retreat, Richmond, Surrey. (Proposed by J. G. Porter Phillips, Maurice Craig, and W. H. B. Stoddart.)

Reid, Daniel McKinley, M.B., Ch.B.Glasg., Assistant Medical Officer, London County Asylum, Horton, Epsom. (Proposed by John R. Lord, David Ogilvie, and Samuel Elgee.)

Dr. Oswald and Dr. Menzies acted as scrutineers.

Dr. G. H. SAVAGE then read a paper on "Insanity and Marriage," prefacing it with a few explanatory remarks as to the reason he was reading the paper on a second occasion (see p. 97).

The PRESIDENT said the meeting had listened to Dr. Savage's interesting communication with the respect which was due to his enormous experience. The author had placed before the meeting, as he believed he was right in interpreting it, the duty of the physician towards the recommendation to allow, or to forbid, marriage. He had done it in a way which members could not help admiring. Dr. Savage had not exaggerated the situations which came before him, nor had he minimised, on the other hand, the gravity of the question. But there was a further paper, on an allied subject, which had appeared in the pages of the last number of the Journal, by Dr. Ewart. The latter gentleman proceeded a step further than Dr. Savage had done, in that he dealt not with the duty of the physician towards his patient, but with the duty which the State should assume towards the question of the marriage of the intellectually unfit, towards the procreation of children, and towards the moral regeneration of the race. Before Dr. Savage read his paper, and after consultation with the Secretary, he took the

liberty of putting it to Dr. Savage whether he would prefer a discussion upon his own paper separately from that on Dr. Ewart's, or whether, the subjects being so evidently allied and running parallel, it would not be better to discuss them both together. He thought it would be the wish of the meeting, having heard Dr. Savage's paper, and, he hoped, having read Dr. Ewart's in the *Journal*, to adopt that course. But in discussing the papers he thought it would be well that, as far as possible, those who preferred to talk of the duty of the physician towards the patient on this question should separate it as largely as possible from the wider question which Dr. Ewart had raised concerning the duty of the State towards the mentally defective. That question at the present moment was assuming enormous proportions in the public mind, owing to the interest which the proceedings of the Divorce Commission was creating, and he felt sure that those who discussed the question would do so with the gravity which it deserved. He would ask Dr. Ewart to communicate a short *précis* of his paper which had appeared in the *Journal*.

Dr. C. T. EWART then recapitulated the main points in his paper, "Eugenics and Degeneracy," which had already appeared in the *Journal of Mental Science*, October, 1910, pp. 670-685.

The two papers were followed by an interesting and earnest discussion, in which the following visitors and members took part; Mr. MONTAGUE CRACKENTHORPE, K.C., Drs. HYSLOP, DONKIN, MERCIER, Miss DENDY, Drs. FLETCHER BEACH, HAYES NEWINGTON, CARSWELL, BRISCOE, BEVERIDGE SPENCE, EDEN PAUL, and the PRESIDENT.

Dr. EWART replied, Dr. Savage having meanwhile been obliged to leave the meeting (see p. 111).

The members afterwards dined together at the Café Monico Restaurant.

SOUTH-EASTERN DIVISION.

The AUTUMN MEETING of the South-Eastern Division was held, by the courtesy of Dr. T. E. K. Stansfield, at the London County Asylum, Bexley, on Wednesday, October 5th, 1910.

Among those present were Sir James Moody, Drs. R. R. Alexander, G. F. Barham, David Bower, G. Clarke, R. H. Cole, M. A. Collins, O'C. Donelan, A. C. Dove, G. Evans, E. Faulks, F. C. Gayton, S. J. Gilfillan, T. D. Greenlees, H. E. Haynes, G. H. Johnston, J. R. Lord, J. Macarthur, R. B. Mitchell, A. S. Newington, E. S. Pasmore, G. E. Peachell, O. P. N. Pearn, J. P. Race, E. F. Sall, J. G. Smith, T. E. K. Stansfield, R. H. Steen, F. R. P. Taylor, F. Watson, and D. Hunter (Hon. Sec.).

The visitors included Andrew T. Taylor, Esq. (Chairman of the Visiting Committee), T. Hunter, Esq., L.C.C., H. F. Keene, Esq., W. C. Clifford Smith, Esq., Rev. J. J. Brownhill, Drs. Brander, Dixon, Lee, and MacDonald.

From noon to 1.30 p.m. the asylum wards and grounds were visited. At 1.30 Dr. Stansfield entertained the members to luncheon. At the close of lunch Dr. David Bower proposed a vote of thanks to Dr. Stansfield and the Committee for their kindness in so hospitably receiving the Division. Dr. Stansfield and Mr. Andrew T. Taylor, Chairman of the Committee, responded.

The meeting of the Divisional Committee was held at 2.15 p.m. The General Meeting was held at 3 p.m., Dr. Stansfield in the Chair.

The minutes of the last meeting, having appeared in the *Journal*, were taken as read and confirmed.

The invitation of Dr. Hyslop to hold the Spring Meeting of the Division at the Bethlem Royal Hospital on April 25th, 1911, was unanimously accepted with much pleasure.

Dr. T. E. K. STANSFIELD read a paper entitled "Heredity and Insanity" (see p. 55).

At the end of the paper Dr. Stansfield suggested that discussion should be deferred until Dr. Faulks had read his paper, which was virtually a continuation of the subject.

Dr. E. FAULKES then read a paper entitled "Sterilisation of the Insane" (see p. 63). In the discussion which followed Dr. E. S. PASSMORE remarked that his experience of 500 cases admitted to the Croydon Asylum coincided with Dr. Stansfield's results. He found that 55 *per cent.* of his cases had a history of hereditary insanity. One fact that prominently appeared was that insanity was transmitted from mother to son, and from father to daughter. He recommended caution in advocating sterilisation as a general measure, because an unsound parent might produce sane and insane offspring, but agreed with Dr. Faulkes that the measure would be efficient and advisable in cases of masturbation and sexual perversion. He also referred to a diagram he had devised to facilitate the recording of family histories.

Dr. R. H. COLE, in criticising the papers in a friendly spirit, thought that it was possible that the doctrine of the hereditary transmission of insanity might be pushed further than facts would fairly warrant. It was surely evident that Nature, by her own processes, leads to the extinction of an essentially degenerate stock. He believed it was incontestable that insanity was occasionally, if not frequently, a variation from an otherwise healthy family. He wished to point out also the natural tendency for disease to revert to the normal under suitable conditions. As an instance of the recuperative force in Nature he cited an example of a youth, who had gained a scholarship at a public school, and who was begotten of a father in the second stage of general paralysis, and was so far doing well. He believed that insanity was frequently inherited from other neuroses, and that it was impossible to foretell with accuracy the result of the progeny of an insane parent, although the risk of defect was great. As to the suggested operative interference he was not fully convinced that, if permissible, it would in adequate proportion so reduce the numbers of admissions to asylums as to justify its recommendation in discharged patients. It would, in his opinion, tend to have a demoralising effect on humanity. It was demonstrated that the increase of insanity was mainly recruited from the pauper classes, who should be elevated by education and other means to a higher sense of their obligations rather than be subjected to operative interference. He considered that the hopelessly defective and weak-minded should be segregated.

Dr. LORD said: It is not often that I raise my voice before this Association, but I cannot resist the temptation to add my tribute to the excellency of the papers of my old "chief," Dr. Stansfield, and my former colleague, Dr. Faulkes. As a result of over twelve years' thought and experience certain definite conclusions are crystallising out in my mind on "heredity." I do not believe that it is possible for any acquired mental state, normal or otherwise, or, better still, a tendency to a mental state, to be transmitted from parents to offspring. How frequently is genius descended from common-place, and, on the other hand, the imbecile from remarkably erudite parents? It is ridiculous to suppose that Nature has devised a special set of laws concerning heredity as regards mankind only, apart from those governing other living things. Acquired insanity, to me, is definitely not transmissible. I am equally convinced, however, that in a good proportion of insanity, say 40 *per cent.*, the tendency to mental disease is innate, germinal, and largely inevitable. Such people are born to become insane given the slightest chance. Furthermore, a number, often the majority, of the members of these families, although never insane themselves, yet transmit to their progeny a terrible fate. Such being my views, the application of sterilisation is one of great difficulty, and granting that all insane persons could be so treated, I beg of you not to expect too great a benefit. In my opinion the great difficulty is how to deal with the *sane* member of neuropathic families. How can sterilisation be applied to them? During the past year in the County of London 1,220 lunatics were discharged "recovered." Of these, roughly speaking, it was possible, but by no means probable, for 813 to have children. Although not a statistician, I doubt very much whether such an annual output would answer for the admission-rate of 2,893 (imbeciles and first attack cases)—or of even 40 *per cent.* of them. Insanity must largely be drawn from sources other than those who have been discharged recovered from asylums. In spite of all this I see no reason why we should not do what good is possible by sterilisation, although limited. There is no doubt in my mind that a large number of our "recoveries" ought to be sterilised before discharge. I think the voluntary consent of the patient or guardians will be necessary, and each case should be carefully considered and the innate tendency to neuropathy

clearly demonstrated. The operation should be made an illegal one except when undertaken under certain definite conditions and by those specially authorised. The community is sure to benefit in the long run, and in thanking, as I do very heartily, Dr. Stansfield and Dr. Faulks for their excellent papers, I trust this meeting will mark the beginning of a new era in the prophylaxis of insanity. As regards those of the community existing outside asylums, but who have the germs of insane states within them ready to transmit, it is only by the proper education of the public, in the main alive to its own welfare, that these can ever be reached.

Dr. R. H. STEEN was of opinion that though sterilisation was the best cure, it was not practicable. He disagreed with Dr. Stansfield on the question of detention in farm colonies, and thought they were the best available methods of preventing the propagation of insanity.

Dr. M. A. COLLINS did not think we had sufficient facts at our disposal to justify us in recommending sterilisation to the public. He thought that much more could be ascertained by extending comparative inquiries among sane families, and by carefully tracing the histories of sane members of insane families. He, however, agreed that in some cases sterilisation was the only remedy.

Drs. STANSFIELD and FAULKS replied.

Mr. T. HUNTER, L.C.C., of the Visiting Committee, in proposing a vote of thanks to Dr. Stansfield and Dr. Faulks for their papers, said that his wish was that the medical profession should lead the Committees, and not *vice-versâ*. Many of the London Asylums' Committee were giving much thought at the present time to such problems as had just been discussed. He expressed his warm appreciation of the papers and discussion, and thought it would be an excellent thing if the Committee could hear all that had been said. He concluded with a spirited appeal to the medical profession, and particularly the junior members, not to be too cautious in pressing the question on the public notice and in giving their advice.

Mr. H. F. KEENE seconded the motion, which was carried unanimously.

After the meeting Mrs. Stansfield kindly entertained the members to tea in the Medical Superintendent's house.

SOUTH-WESTERN DIVISION.

The AUTUMN MEETING of this Division was held at the University of Bristol on Friday, October 28th, 1910.

The following members were present:—Drs. Blachford, Bullen, Sydney Cole, W. S. Graham, Lavers, P. W. Macdonald, Morrison, Morton, Nelis, Eden Paul, J. R. Perdrau, Phillips, Pope, Prentice, J. M. Rutherford, Soutar, Thomas, E. Barton White, and the Hon. Divisional Secretary.

Prof. Fawcett, and Dr. Schölberg, Pathologist to the Cardiff Infirmary, were also present as visitors.

Dr. Soutar having been voted to the Chair, the minutes of the last meeting were taken as read and duly signed.

The following candidates were elected members of the Association:

John Cosserat Mackenzie, M.B., C.M.Edin., Assistant Medical Officer, City and County Asylum, Hereford. (Proposed by Drs. Morrison, Aveline, and J. W. Rutherford.)

Thomas Waddelow Smith, L.R.C.P.Lond., M.R.C.S.Eng., Second Assistant Medical Officer, Devon County Asylum, Exminster. (Proposed by Drs. Davis, Richard Eager, and Aveline.)

Jean René Perdrau, M.B., B.S.Lond., Third Assistant Medical Officer, Devon County Asylum, Exminster. (Proposed by Drs. Davis, Richard Eager, and Aveline.)

Edward Barton White, L.R.C.P.Lond., M.R.C.S.Eng., Assistant Medical Officer, Cardiff City Mental Hospital, Whitchurch, Glam. (Proposed by Drs. Goodall, Aveline, and J. W. Rutherford.)

It was resolved to hold the Spring Meeting fixed for April 28th, 1911, at the Somerset and Bath Asylum, Cotford, near Taunton.

A letter was read from Mrs. Manning, in which she expressed her thanks to the members for their kind sympathy.

Dr. SYDNEY P. COLE then proceeded to give a demonstration on "The Comparative Anatomy of the Frontal Lobe, and its Bearing upon the Pathology of Insanity" (see p. 52). A series of brains illustrating his remarks were exhibited by means of lantern-slides.

The CHAIRMAN, Professor FAWCETT, Drs. POPE and PAUL took part in the discussion which followed.

Dr. E. BARTON WHITE read a paper, written in conjunction with Dr. SCHÖLBERG, Pathologist to the Cardiff Infirmary, on "Pituitary and Supra-renal Growths in a Case of Insanity" (see p. 18).

The paper was illustrated by means of specimens, drawings, and micro-photographs.

This was commented on by the CHAIRMAN, Drs. COLE, MORRISON, and POPE.

Dr. PERDRAU read a paper on the "Clinical Aspect and Treatment of Asylum Dysentery," in which he described the form of treatment recently carried out at the Devon County Asylum (see p. 93).

On account of the lateness of the hour Dr. W. S. GRAHAM's paper, "Notes of a Case of Melancholia Associated with Cerebral Abscess," was, with his permission, postponed to the next meeting.

A vote of thanks was accorded to Professor Fawcett and the University authorities for the use of the room, and to Dr. Soutar for so kindly presiding.

A number of the members subsequently dined together at St. Stephen's Restaurant, Bristol.

NORTHERN AND MIDLAND DIVISION.

The AUTUMN MEETING of this Division was held at the kind invitation of Dr. C. L. Hopkins, at the City Asylum, Fulford, York, on Thursday, October 20th, 1910. Dr. Hopkins presided.

The following fifteen members were present: Drs. M. A. Archdale, A. R. Douglas, J. W. Geddes, J. Herbert, C. K. Hitchcock, C. L. Hopkins, H. Kershaw, H. J. Mackenzie, G. F. May, C. McDowall, T. W. McDowall, J. Middlemass, B. Pierce, E. F. Trevelyan, and T. S. Adair.

The President, Dr. John Macpherson, expressed regret at being unable to be present.

The minutes of the last meeting were read and confirmed.

On the proposal of Dr. GEDDES, seconded by Dr. MIDDLEMASS, Drs. Hitchcock, McDowall, and Pierce were unanimously re-elected to form the Divisional Committee for the next twelve months.

Dr. MIDDLEMASS then read his paper on "Hereditary Syphilis and General Paralysis." He commenced by apologising for bringing forward so well-worn a subject. The idea occurred to him some time ago that in cases of general paralysis where no history of personal syphilis could be ascertained, an explanation might be found in hereditary syphilis as a cause. Probably most people are of the opinion that developmental or juvenile general paralysis is due to inherited syphilis, and in the great majority of the cases he had seen there was a clear history pointing in this direction. In one such case reported the Wassermann reaction had been found to be positive. He went on to suggest that in cases where there is no history of acquired syphilis, a positive Wassermann reaction might point to hereditary syphilis and not to the untruthfulness of the patient.

In the discussion which followed Dr. HOPKINS referred to the use of the Ross-Jones test. Dr. TREVELYAN spoke of the relation of tabes to syphilis in families, and mentioned an interesting case. Dr. HITCHCOCK considered that general paralysis depended on the temperament of the individual as well as on acquired or hereditary syphilis.

Dr. BEDFORD PIERCE gave a most interesting account of his visit to the "International Congress on Psychiatry," held in Berlin from October 3rd to 7th, 1910. After giving a brief sketch of the arrangements made for the holding of the Congress and the cordial reception extended to the visitors, he briefly outlined the various items that were brought before the Congress, amongst which may be mentioned papers on "Asylum Planning," "Work as a Therapeutic Agent," "The

Boarding Out of the Insane"—illustrated with lantern views of its working in Hungary—"The Significance of the Wassermann Reaction," "Mental Diseases in the Army and Navy," and "Sleeping Sickness." Perhaps the most interesting features of the Congress were: An exhibition of models of various asylums in South Germany, cinematograph films showing the movements of the insane, and an excellent cinematograph exhibition of micro-organisms, showing in a most striking way their movements, particularly in relation to the red blood-corpuscles. Amongst those exhibited in active movement were *Spirochæta pallida* and various spirilla and trypanosomes.

Dr. McDOWALL thought that some demonstrations similar to those shown in Berlin would be very instructive if exhibited at one of the General Meetings of the Association in London.

The Secretary was instructed to write to the General Secretary offering this suggestion.

Dr. Williamson was not present to read his paper on a "Case of Melancholia."

A very enjoyable meeting was brought to a close by a hearty vote of thanks to Dr. Hopkins and the Committee of the York City Asylum for their kind hospitality.

SCOTTISH DIVISION.

A meeting of the Scottish Division of the Medico-Psychological Association was held in the Hall of the Royal College of Physicians, Queen Street, Edinburgh, on Friday, November 18th, 1910.

Present—Drs. Bruce, Clouston, Dods Brown, Ker, Winifred Muirhead, Macrae, T. C. Mackenzie, Macdonald, G. M. Robertson, Shaw, Steele, Taylor, Batty Tuke, Turnbull, Urquhart, and R. B. Campbell.

Dr. Turnbull was called to the chair.

The minutes of the last meeting were read and approved, and the Chairman was authorised to sign them.

Apologies for absence were intimated from Dr. John Macpherson, President of the Association, Drs. Alexander, Easterbrook, Watson and Yellowlees.

A letter was submitted from Dr. Marr, resigning the Secretaryship of the Scottish Division, and it was unanimously resolved to convey to Dr. Marr the congratulations of the members present on his appointment as one of His Majesty's Commissioners in Lunacy for Scotland, and at the same time to convey to him the thanks of the Division for the manner in which he had discharged the duties of Divisional Secretary during his term of office.

Dr. CLOUSTON proposed that Dr. R. B. Campbell be asked to take over the Divisional Secretaryship in succession to Dr. Marr.

This was unanimously agreed to, and Dr. Campbell consented to do so.

Dr. G. M. Robertson and Dr. Hotchkis were nominated for the position of Representative Members of Council.

Dr. R. B. Campbell was nominated for the position of Divisional Secretary.

The Business Committee was appointed, consisting of Drs. Hotchkis, Carlyle Johnstone, G. M. Robertson, Sturrock, and R. B. Campbell.

The following candidates, after ballot, were admitted to membership of the Association:

John Q. Donald, L.R.C.P. and S.E., Medical Superintendent, Invereden Lodge Retreat, Dairsie by Cupar. (Proposed by Drs. Campbell, G. M. Robertson, and Turnbull.)

Bell, G. Emslie, M.B., Ch.B.Edin., Assistant Medical Officer, Stirling District Asylum, Larbert. (Proposed by Drs. Campbell, Gostwyck, and Muirhead.)

Donald C. Macaskill, M.B., Ch.B.Edin., Assistant Medical Officer, Stirling District Asylum, Larbert. (Proposed by Drs. Campbell, G. M. Robertson, and Gostwyck.)

James Davie, M.B., Ch.B.Edin., Assistant Medical Officer, District Asylum, Inverness. (Proposed by Drs. T. C. Mackenzie, Bruce, and Campbell.)

Dr. G. M. ROBERTSON read a paper on "The Administration of Sulphonals, its Dangers, and the Precautions to be Adopted," which led to a most interesting and

instructive discussion, which was taken part in by Drs. Bruce, Clouston, Havelock, Hotchkis, Carlyle Johnstone, Macrae, and Urquhart. (Dr. Robertson's paper, with the discussion, will appear in the April number of the Journal.)

Dr. CARLYLE JOHNSTONE drew attention to some of the more important points in the working of the Asylum Officers' Superannuation Act, which were discussed by those present.

A vote of thanks to the Chairman concluded the business of the meeting.

The members afterwards dined together at the Caledonian Railway Station Hotel.

IRISH DIVISION.

The AUTUMN MEETING of the Irish Division took place at the Royal College of Physicians, Kildare St., Dublin, by kind permission of the President and Fellows of the College, on Saturday, November 5th, 1910, at 2.30 p.m. Dr. T. Drapes, President-elect, was voted to the chair, and there were also present—Drs. R. R. Leeper, E. O'Neill, J. Mills, M. J. Nolan, and W. R. Dawson (Hon. Sec.). Apologies were received from Drs. C. E. Hetherington, F. O'Mara, W. Graham, Jas. J. Fitzgerald, and P. J. Dwyer.

The minutes of the last meeting were read and signed.

A short discussion took place regarding the refusal of the Council to pay the expenses of officers in attending meetings, and it was proposed by Dr. O'Neill, seconded by Dr. Nolan, and passed unanimously—

"That the Council having declined to accede to the request of the Irish Division that the Secretary's expenses in attending meetings be paid, we hereby resolve that in future his expenses be paid, by special subscription, by the members of the Irish Division."

The Secretary was accordingly directed to furnish an account of his expenses at the end of his year of office.

A letter from Sir George P. O'Farrell was read, conveying his thanks to the Division for their resolution of regret at his retirement.

The following was balloted for and declared unanimously elected an ordinary member of the Association: Geoffrey Scroope, M.B., B.Ch., B.A.O. Univ. Dubl., Assistant Medical Officer, Central Asylum, Dundrum (proposed by Drs. G. Revington, J. O'C. Donelan, and W. R. Dawson).

It was decided to ask Dr. Donelan to allow the Spring Meeting of the Division, fixed for April 27th, 1911, to be held at the Richmond Asylum, Dublin.

The HON. SECRETARY reported (in the absence of Dr. W. Graham) that the Sir George O'Farrell Presentation Committee had collected a sum of £228 4s. 6d., of which £10 10s. had been spent on a silver tube to hold an Address, and £4 14s. 6d. on expenses, leaving a balance of £213 for a portrait. The presentation had been made at the Shelbourne Hotel, Dublin, on October 5th, 1910.

A general discussion then took place with reference to the recent reduction of the capitation grant from Imperial funds towards the support of the pauper insane. Eventually a unanimous resolution was passed strongly re-affirming "the absolute necessity of a grant in aid towards the maintenance of pauper lunatics in District Asylums, at a minimum sum of 4s. per week per head, if efficient care and treatment are to be kept up." It was directed that this should be sent to the Chief Secretary, the Inspectors, and all the Irish Members of Parliament.

A discussion followed on the hours of duty of asylum attendants, and there was a general expression of opinion that there should be a uniform scheme of leave for attendants in all district asylums, and that representations to this effect should be made to the Inspectors of Lunatics.

It was reported that the Divisional Committee for promoting interest in the work of the Association amongst the assistant medical officers of Irish asylums had taken place that day. No response had been received to their invitation for collective reports, and it had been agreed to defer further action pending the establishment of the system of Divisional Prizes.

Dr. Dwyer being absent, it was agreed to postpone his paper, and Dr. O'NEILL then read his "Notes of a Case of Melanotic Alveolar Sarcoma of the Liver

characterised by Rapidity of Growth and Abnormal Weight." The paper was illustrated by naked-eye and microscopic specimens (see p. 112).

Dr. LEEPER remarked that the case presented by Dr. O'Neill was of great interest to him. In these cases the production of melanin in such an enormous quantity in the body in such a short period was very astonishing. He understood that melanin was produced by the action of an enzyme upon a proteid. In a case somewhat similar to the case of Dr. O'Neill which he had treated in St. Patrick's Hospital, the first noticeable symptom was a small black nodule the size of a pea on the skin of the patient's forearm. Within one fortnight this patient's whole body was covered with multiple round-celled melanotic sarcomata, and at the autopsy granules and round pea-like tumours were found in the cerebral cortex and cerebellum. The primary growth seemed to have been in the great omentum. Dr. Leeper wondered why these melanotic sarcomata did not appear to spring from those seats in the body where melanin was a normal constituent, like the *locus niger* and elsewhere. In his case, although melanotic sarcomata were freely scattered through the frontal and parietal lobes and the cerebellum, no increase of melanin was observed in the *locus niger* or *locus ceruleus*, which seemed to point to the fact that the melanin found in the sarcomata was a different substance chemically from the normal melanin of the body.

The SECRETARY said that the microscopic preparations seemed to bear out Mr. Handley's view that the propagation of sarcoma took place by continuous growth of the cells along the lymphatics, as lymphatics containing pigmented sarcoma-cells were to be seen in many places in the specimens shown.

Dr. O'NEILL, in replying, stated he had shown the liver to an Army surgeon of nearly twenty years' experience in India, where diseases of the liver are so prevalent, and said he had never come across such a remarkable case. It was a cause of great regret that there had been no examination of the brain, but, as he had already stated, this was not possible. Coley⁽¹⁾ refers to a case where a small tumour was found in the palm of the hand, and although removal was urgently suggested the patient refused. Later on she placed herself in the hands of Christian Scientists, who persuaded her that she was getting better, but ultimately the arm had to be amputated. Coley has also recommended treatment of inoperable sarcoma with mixed toxins of erysipes and *Bacillus prodigiosus*. The liver appears to be the largest ever recorded.

The meeting terminated.

NOTE ON THE USE OF PADDED ROOMS AND THE PRACTICE OF LOCKING UP PATIENTS BY DAY IN SINGLE ROOMS.

By GEORGE M. ROBERTSON, M.B., F.R.C.P.Edin., Physician-Superintendent, Royal Edinburgh Asylum, Morningside.

In the October number of the Journal I have been taken to task (p. 750) for having "been indiscreet in classing as undesirable some practices which have been shown to be uncontrovertibly sound on grounds of reason, as well as of emotion, and only to be inapplicable when wrongly applied." These practices are the use of padded rooms and what is technically called "seclusion," but which is simply and accurately described as locking up patients by day in single rooms. I must again say that I do consider these practices *undesirable*, that I do not admit them to be *uncontrovertibly sound*, and that the propriety of their application at all times is *open to doubt*. As I have had an experience of twenty-one years' duration full of experimental research into methods, and as the opinions expressed above have been founded on this personal experience, I feel myself on fairly solid ground.

In the first place I consider the two practices as essentially undesirable as they can possibly be, and I place them, though on a lower level, in the same category as mechanical restraint, which is only resorted to most exceptionally and in the direst necessity. Of course, it is possible to say that if mechanical restraint be necessary and does good in one case for one day in 100,000, that to that extent the practice of it is desirable. A similar limited desirability may be claimed for the padded

(¹) *Phil. Medical Journal*, 1901.

room and the single room. When flogging was in vogue the same was no doubt claimed for it with similar reason. A patient was pointed out to me in an asylum who was troublesome and would not employ himself, till one day he was soundly thrashed by another patient for these faults and he became a reformed and useful person ever after. I have, therefore, no doubt that could the madhouse keepers of the past come to life, they could easily demonstrate to us that flogging was desirable because it did good, and that it was only inapplicable when wrongly applied. Would any of us now adopt the practice?

The broad way of looking at this question, taking everything into consideration, cannot fail to convince one that the practice of locking up sick persons under medical care for treatment, in padded rooms and single rooms is undesirable. It is a form of "treatment" which has been handed down to us from the past, and it had its origin in, and was adopted from, the jails. It became naturalised in the mad-houses of one hundred years ago because these institutions were not mental hospitals, but prisons for the insane. I venture to say that no medical student from the hospitals or young graduate, seeing the practice adopted for the first time, but feels more keenly its prison-like characteristics with compassion for the individual subjected to it, than a realisation of its medical and therapeutic blessings. Familiarity of experience, of course, blunts these feelings, and the conservatism of human nature may in the end commend the practice to many, but the sight of a patient locked up in a room will never fail to create an impression, often indelible, on a layman visiting an asylum for the first time. This impression is never favourable, and it is always accompanied by sympathy for the unfortunate sufferer.

Another circumstance in connection with these practices is that the general public have an idea that a large number, if not the majority, of our patients are treated in this manner. So much depends on our good name that the existence of this misconception and its removal is a most important matter to all who have the welfare of the insane at heart. I have taken hundreds of students and numberless deputations of public bodies round asylums, and they have all shown an exaggerated and even morbid interest in the padded room. It is hardly too much to say that in the eyes of the public it is the feature of asylum treatment which is characteristic of the institution, and it is magnified in importance and in frequency of employment out of all semblance to the truth. I had a personal experience of this fact lately at a dinner given by a club in honour of a retiring Commissioner in Lunacy. The menu was illustrated with his portrait in the guise of a knight in armour, and on his shield was the device of a female standing in a padded room—to my mind a most unhappy and inappropriate choice of subject, but it illustrates how the public think.

Then, if we take the feelings of the patients on the practice, we find that it is not popular with those who can express themselves. There are rare exceptions, but the vast majority object to it as insulting and offensive to them. One patient, who came to me from another asylum, where she was periodically locked up by day in a single room, wrote home to her friends that the place she had now come to was not an asylum at all, as no one had dared to lock her up. She was quite easily managed without doing so. The patients' friends are not, it is true, usually told about these occurrences, but when they do hear *they* do not think the practice desirable. A few months ago the mother of a transferred patient called at my house to thank me on behalf of herself and her daughter for not putting her daughter in the padded room for recurrent excitement.

I have, further, to refer to one more point: the effect the knowledge has on the nursing staff that locking up patients in rooms is regarded by the medical officers as a legitimate, recognised, and regular form of treatment in suitable cases. I observed in an asylum where the practice was used that the nursing staff was very ready to suggest, directly or more usually indirectly, resort to this method of treatment in all troublesome cases, and, moreover, that failure to acquiesce in these suggestions, and to order it, on the part of the medical officers, was more or less openly resented. On the other hand, in an asylum where confinement by day in a single room or padded room had never been used, and this form of treatment was not recognised, it was never hinted at or thought of by the staff, and there was no unpleasantness of feeling generated if it was not ordered. I have also found that in those asylums where it was not resorted to, the nursing staff were more patient with troublesome patients and were more full of resources in devising other

means of coping with the difficulties that arose. I therefore have no hesitation in saying that the practice has a demoralising effect on the staff to this extent, and it is only what anyone with a knowledge of human nature would naturally expect.

I think everyone will agree that this form of treatment is one which may be abused, even when the greatest care be taken, and this is an additional strong reason for having as little to do with it as possible, as we are all human and liable to err. I will give one of my own experiences in an asylum where locking up in single rooms was practised, but was kept, as I then thought, within reasonable limits. On one occasion I ordered an adolescent girl to be placed in the padded room. For several days afterwards when I visited her I received tales of her excitement and violence, and the number of nurses it took to control her when she was fed, washed, etc., so that any suggestion of mine for her removal from the padded room was instantly set aside as a demonstrated impossibility. One of the nurses, however, came to me privately, and under promise of secrecy told me I was being systematically deceived by exaggerated reports, and that there was nothing to prevent the girl leaving the padded room. This was a lesson on the weakness of human nature where selfish interests are involved that I have never forgotten. So fully realised, however, is the danger of abusing this form of treatment that the authorities most properly compel us to keep a written record of it in our registers, and it is also a significant and instructive fact that since the Board of Lunacy for Scotland started to ask for quarterly returns of this, and to publish them, the total amount of locking up by day has decreased in the most marked manner. I therefore feel justified in believing that so surely as the time had already come when all mechanical restraints have been discarded, save in exceptional cases of direst necessity, so will the day come when this unmedical tradition will also be given up and be employed only in the most exceptional circumstances.

If all these facts be taken into consideration and be judicially weighed in the balance, one can scarcely fail to come to the conclusion that the practice has very serious objections, and is, therefore, undesirable.

In the second place, is the practice "uncontrovertibly sound"? To be so, it appears to me that two conditions would require to be fulfilled. The practice would require to be, in the first place, of as great, if not greater, benefit to the patient than any other treatment directed to the same ends. In the second place, the disadvantages associated with the practice would require to be as few, if not fewer, than those associated with alternative forms of treatment. Now, for purposes of argument, let us here admit that as regards the symptoms to be treated the practice of confinement to padded and single rooms is as good as any other. The drawbacks, however, of which I have mentioned some, are of so serious a nature, and so opposed to the fundamental ideals of medical and of hospital treatment, that almost any alternative as good, or even nearly as good, would be preferable. It has to be remembered, in this respect, that the resources of asylum treatment have enormously increased of recent years. The numerical strength of the staff of the asylum of the present day is probably three times that of the asylums at the beginning of the last century, and the increase of skill, intelligence, devotion to duty, and discipline are even more striking than the increase in numbers. Our resources in the way of drugs and the methods of administering them, including hypodermic medication, are infinitely superior to those of the past, and the watchful care with which the development of acute symptoms is followed by the medical officers and the heads of the nursing staff makes the asylum of the present day a totally different place for treatment from the prison-like madhouse of the past, where the practice of locking up patients was originally introduced.

Let us, however, consider the uses of padded rooms, to which my attention is directed, and consider if the alternative methods of treatment that now exist be not quite as good, if not better. In the first place, their usefulness in cases of delirious insanity is pointed out. These cases, in my opinion, should be treated just as cases suffering from the analogous delirium of pneumonia or typhoid fever are treated, *viz.*, by appointing special nurses and attendants to sit beside their beds and give them the continuous supervision, attention and nursing they undoubtedly require. I have never allowed such cases to be locked up in padded rooms, as I consider that all the resources of nursing are required for their proper treatment and recovery. In the second place, it is pointed out that the padded room is a safe and a soft place for weak and feeble patients to tumble about in. Again, I say that

such patients, usually aged and infirm, require personal care and supervision, and should get it. To lock such patients up in padded rooms is, in my opinion, a cheap but an objectionable way of preventing them from hurting themselves, and although I know it has been recommended in the past, I have never adopted it. It is neither medical treatment, personal care, nor modern nursing; it appears to me to be rather the negation of all active supervision and attention. The value of "seclusion" was also pointed out to me, but everyone knows by this time who has read my article in the last number of the *Journal* on the "Treatment of Mental Excitement," that I recognise its value most thoroughly and practice it constantly and largely. This, however, is never done by locking up patients, as I consider this an objectionable and harmful addition to a most useful mode of treatment, and I have found it to be quite unnecessary when special nurses and attendants were provided.

Finally, it is stated that these methods are only "inapplicable when wrongly applied." Now this is a truism that may mean anything in practice, depending, as it does, on one's opinions. Theoretically, I can conceive of the necessity of locking a patient in a padded room as the best, and even the only means of treatment, but practically, I have admitted 3,000 cases and have waited over fifteen years without getting a suitable case to which to apply it. When the price of rubber was high during the rubber boom I was sorely tempted to strip the pads off the rooms and sell them for what they would bring. I still have padded rooms and an open mind on the subject of their use, and when I meet a case to which their employment is applicable, then I will apply it. This exceptional case will make no difference to my views, or to my practice, or to my argument. I have stated that the padded room has "become practically unnecessary," and in spite of the above admission I think the statement is perfectly justified. There has never been one at the Perth District Asylum, nor in the Glasgow District Asylum at Woodilee, and no doubt very many other institutions besides. An American superintendent recently came round this place who had never seen one in his life.

In having been able to carry out the purely medical lines of treatment indicated above by means of the adoption of continuous personal supervision by special nurses, as opposed to the older practice of locking up patients in padded and single rooms, I was indebted in the past to the enlightened and generous view the Stirling District Lunacy Board took of their responsibilities to their patients by supplying a staff adequate for these purposes. The great resources at the disposal of the Royal Edinburgh Asylum of course enable its Board to carry out any policy that has the sanction of modern science. In the end it largely comes to this, that the practice of locking up patients in padded rooms and single rooms has the recommendation of economy, because special attendants and nurses are not then required to look after the patients—an admission frankly made to me the other day by a physician who employed these practices. It was largely for this reason that patients used to be kept under restraint in the old asylums, there not being a sufficiently large staff to look after them in any other way. But just as mechanical restraint has been given up and personal supervision has taken its place, though more expensive, so I am convinced the practice of locking up a patient to enable him to tumble about safely in padded rooms, or to get the advantages of seclusion, will also soon be a thing of the past. The modern ideal at all events is worth striving for.

NOTE BY THE REVIEWER.

Dr. Robertson has not added much of value by way of explaining or supporting those points in his report to which was taken, and is still taken, strong objection. He continues to advocate advances in treatment rightly enough, and he adds some not very uncommon experiences which have come to him in his twenty-one years of practice. The recital of his beliefs would have been more acceptable had the fact that they are entirely shared by his colleagues been made more prominent. On the other hand, when one reads a wholesale denunciation of discarded practices, accompanied by a full explanation that they are not used by the denunciator, it is not unpardonable to fear that the casual reader would conclude that some of us are farther from salvation than that denunciator.

Dr. Robertson has missed the chief point which prompted the terms of the review. In his report he describes the disuse of the padded room and seclusion as

an "instance of characteristic asylum practices which have been discarded." They have not, as a matter of fact, been discarded. Dr. Robertson himself last year secluded a patient on account of "maniacal and dangerous excitement," no doubt on uncontrovertibly sound grounds. If the public are so prone to act on the principle of *ex uno disce omnes*, as he proceeds to show with some particularity, we should fear for the reputation of Morningside on account of the grave departure from principle involved in the use of a discarded practice. We have little doubt that Dr. Robertson would triumphantly emerge from the difficulty created by himself, but will it be so easy for others, who may, perhaps, have but little confidence and much desire to abstain from baring their souls to the public gaze, to explain away their occasional use of a vigorously proscribed practice? That is one of the chief points which troubled the mind of your reviewer.

A feeling of some reverent thankfulness to those who have gone before and made the path so easy for the re-discovery of much that they found out, makes it aggravating to see harsh terms applied to their splendid work and adventuresomeness. Kicking down the ladder on which we have climbed to a height, and are still climbing higher, is ungracious, not to say questionable.

And now I may point to the revised view taken by Dr. Robertson in his letter. There he speaks of the practices as discarded, "except in occasional cases of the direst necessity." *Cadit quæstio!*

Concerning the effect of these practices on the *morale* of the staff, my statement purposely included a "strong" prescriber. If a superintendent who has to use them permits, or is affected by, his staff resenting his discretion in use, then the conditions of my statement are hardly fulfilled.

Finally, Dr. Robertson is wrong in assuming that the frail patients, for whom I claim the benefits of the padded room, are necessarily locked up in them or withdrawn from skilled and kindly supervision. If his belief runs that way, he has need of yet further experience before he lays down the law of the padded room.

YOUR REVIEWER.

MEMORIAL TO DR. CONOLLY NORMAN.

UNVEILED BY THE LORD LIEUTENANT.

A MEMORIAL to the late Conolly Norman, M.D., F.R.C.P.I., erected in the north choir aisle of St. Patrick's Cathedral, was unveiled by the Lord Lieutenant in the presence of a fairly large congregation on October 18th, 1910.

The choir and clergy met His Excellency, who was accompanied by the Countess of Aberdeen, at the south-west door of the Cathedral, and moved in procession to the north choir aisle. Then the Succentor read the appointed prayers and collects, after which the hymn, "Nearer my God to Thee," was sung.

ADDRESS BY LORD LIEUTENANT.

The Lord Lieutenant said, "We have assembled here to dedicate a memorial to one whose character and work rendered him worthy, indeed, of such a tribute. Most appropriate, too, is it that this commemorative effigy should be erected within this building, which is pervaded by so many hallowed memories and associations. For our friend, though called hence comparatively early in life, had truly 'served his day and generation before he fell on sleep'; and not only so, but his service was of that high rank which attaches to all true effort for the alleviation of the ills of humanity, and surely never more so than in the case of that mysterious affliction whereby, in a manner often inscrutable, the gifts of reason and intellect are withdrawn. Of Dr. Conolly Norman it may emphatically be said that his heart was in his work. Well do I recollect the occasion when, twenty-four years ago, I first saw him. He was a candidate for the important post which he afterwards occupied for the remainder of his life. At that time the appointment rested with the Lord Lieutenant. I had already formed the definite opinion that he was the right man for the post, but I felt it necessary to abstain from making him aware of this until I had privately informed another candidate, who I knew would be deeply disappointed. On observing my reticence Dr. Norman could not conceal his chagrin. But this only confirmed my opinion regarding him. For it was evident that his eagerness was not caused by mere ambition in a worldly sense, but by the intense

desire for an opportunity for doing work which he felt he could rightly perform. Next day I had the satisfaction of offering him the appointment, and his joy was great. We all know how fully justified were the anticipations regarding his career. He threw himself into his difficult and delicate work with complete devotion. And not only was the great institution, of which he had the supervision, immensely improved, but the influence of his methods and his skill was of direct benefit in other similar institutions in this country. Often, too, have his advice and counsel been sought from elsewhere. With all this, his social disposition attracted many friends, and the geniality of that home will not be forgotten when we tender to his widow the homage of our truest sympathy. And now it only remains to us, in reverent affection, to unveil, and to contemplate, this memorial, which will form the tribute, the lasting token, of grateful regard and esteem."

His Excellency then unveiled the memorial.

The Dean of St. Patrick's said that he had the honour and privilege of accepting on behalf of the Chapter the memorial to Dr. Conolly Norman, which had just been unveiled. It would be quite inappropriate that he (the Dean) should attempt to add anything to the words that His Excellency had addressed to them, but he would only say this, that these memorials of men who had served their country honourably and faithfully, and with all their strength, were not the least amongst the treasures of that ancient church, and they of the Chapter fully recognised that in taking responsibility for that monument they were accepting a sacred trust which would for the generations to come be a record of an honourable, a useful, and a Christian life.

The Dean then pronounced the Benediction, and the Service concluded.

THE MEMORIAL.

The memorial consists of a medallion portrait in high relief in bronze of Dr. Conolly Norman, the work of Mr. J. M. S. Carré, whose portraits in bronze of Dr. Mahaffy and Prof. Tyrrell, S.F.T.C.D., have been much admired. The portrait is set in a fine, Gothic, foliated setting of freestone, from a design of the late Sir Thomas Drew, P.R.H.A., architect to St. Patrick's Cathedral, who designed this and a series of similar niches for the north and south aisles of the choir of the cathedral, and the design has been admirably carried out by Messrs. Emery and Sharpe. The bas-relief of Dr. Norman is surmounted by his crest, executed in bronze, also the work of Mr. J. M. S. Carré, under the guidance and with the assistance of Capt. Nevile Wilkinson (Ulster), and beneath is an inscription in raised lettering on a bronze panel as follows:

"Conolly Norman, M.D. (Hon. Causa), Univ. Dub.; Vice-President Royal College of Physicians of Ireland; for twenty years Medical Superintendent of the Richmond Asylum, Dublin; President of the Medico-Psychological Association, 1894-5; a true friend, an able physician, an ardent student of science, a man of varied culture and of pronounced individuality. Born 12th March, 1853; died 23rd February, 1908."

The artist has attained a remarkable likeness of the late Dr. Norman, and has in a very remarkable degree overcome the difficulties which invariably present themselves in posthumous work.

PORTRAIT PRESENTED TO COLLEGE OF PHYSICIANS.

In the afternoon an oil portrait of Dr. Conolly Norman, painted by Miss Harrison, was formally handed over to the President and Fellows of the Royal College of Physicians in Ireland by a deputation of the subscribers to the Memorial Fund. The portrait had already been accepted by the College. The members of the deputation were:

Sir Thornley Stoker, Rev. Canon Burke, Rev. H. Taylor, Dr. J. O'Connor Donelan, Dr. J. R. O'Connell, Dr. E. L. Fleury, Sir Charles Ball (President of the Academy of Medicine), Dr. A. O. O'C. Finnegan, Surgeon-General Kenny, Mr. Thomas Norman, Dr. James Kenny, Dr. J. Mills, and Dr. Arthur Baker.

Sir Thornley Stoker introduced the deputation to a meeting of the Fellows in the College, Kildare Street. He first congratulated the newly elected President of the College (Dr. Hawtrey Benson) on the honour that had just been conferred on

him. Sir Thornley said that he was the oldest and, he believed, the dearest friend of the late Dr. Conolly Norman, whose portrait they were presenting to the College. He had known him all his life, and the longer he knew him the deeper became his esteem and affection for him. He was a man who loved his profession; his qualifications for following it were of the highest order. In Dr. Conolly Norman they had an extraordinary type of man, one in whom kindness was united with great qualities of mind. Strength of character was not often united with kindness. We often had a kind man who was not strong in mind, or a man strong in mind who was not kind. Dr. Conolly Norman's services to the medical profession and to that College were great. He did not need to dwell on them, as they were still fresh in the memory of all. Sir Thornley referred appreciatively to the care that Miss Harrison had taken with the portrait, and to the artistic result. He then formally handed the portrait over to the President and Fellows.

The President (Dr. Hawtrey Benson) said: Sir Thornley Stoker and gentlemen of this deputation, on behalf of this College, I thank you for having now committed to our care this beautiful portrait. We will care it and value it in memory of one whom we all admired and respected in no ordinary degree, and who throughout his life raised such a high standard of philanthropy, self-sacrifice, and devotion to duty. Again I thank you. (Applause.)

The deputation then withdrew.

(*Irish Times*, October 19th, 1910).

PRESENTATION TO SIR GEORGE P. O'FARRELL.

SIR GEORGE P. O'FARRELL, M.D., who recently retired from the office of Inspector of Lunatics, was on October 5th, 1910, the recipient of an address from the Irish Lunacy Service. The address is to be accompanied by a portrait, which is being painted. The movement to organise the presentation was inaugurated at Belfast in July at a meeting of the Medico-Psychological Association (Irish Branch), and was heartily taken up throughout the service, the honorary secretaries being Dr. William Graham, R.M.S. (Belfast), and Dr. James J. Fitzgerald, R.M.S. (Cork).

The event took place at the Shelbourne Hotel, where there was a representative gathering of all grades of the service. Sir George O'Farrell was welcomed with applause. The attendance comprised:

Dr. Charles Hetherington, R.M.S. (Londonderry), Dr. Harvey (Clonmel), Miss Sara M. E. Bernard (Dundrum), Dr. T. P. Conlan, R.M.S. (Monaghan), Dr. W. R. Dawson (Co. Dublin), Dr. Thomas Drapes, R.M.S. (Enniscorthy), Dr. Thomas Greene, R.M.S. (Carlow), Mr. James Harper (Belfast), Dr. George Lawless, R.M.S. (Armagh), Dr. R. R. Leeper, Dr. J. C. Martin, A.M.O. (Letterkenny), Dr. M. J. Nolan, R.M.S. (Downpatrick), Dr. James A. Oakshott, R.M.S. (Waterford), Dr. Patrick O'Doherty, A.M.O. (Omagh), Dr. Ed. D. O'Neill, R.M.S. (Limerick), Dr. George Revington (Dundrum), Mr. James Smith (Lunacy Office), Dr. Finnegan (Mullingar), Dr. Coffey (Maryborough), Dr. Rainsford (Stewart Institution).

Dr. Hetherington was moved to the Chair.

Dr. GRAHAM (Hon. Sec.), read letters of apology received from Dr. F. J. Ellison (Castlebar), Dr. R. Thompson (Omagh), and Mr. W. J. Ewing (Attendant, Letterkenny), as samples of the letters received from members of all grades of the service.

The CHAIRMAN said they were met to honour one who had been known to many of them for many years, and whose retirement involved a serious loss to the asylum service. Through all the years of his inspectorship it had been Sir George O'Farrell's one desire to improve the Irish asylums, and in that aim his colleague, Dr. Courtenay, had worked side by side with him all through their long years of office. Sir George's first object had been to improve the asylums for the inmates, making them as far as possible curative hospitals for those whose mental condition held out hopes of cure or improvement, and, for the rest, a retreat with such comfort as could be reasonably provided for them during their affliction. Another desire of Sir George O'Farrell had been that the staffs of asylums should be brought up to the highest standard of merit, and that there should be a reward for long years of faithful service. In this connection the Chairman instanced Sir

George's untiring interest in the passing of the Superannuation Act of 1909. They had mainly to thank Sir George O'Farrell that Ireland was included in that Bill. He (the Chairman) spoke with knowledge of what took place during the many vicissitudes of the Bill. He concluded by saying that it was the unanimous wish of all those represented there that Sir George O'Farrell would long be spared to enjoy his retirement from active official work, and assuring him that he would always get a hearty welcome whenever he visited an Irish asylum. (Applause.)

Tributes to Sir George O'Farrell's work during his twenty years of office, to his personal qualities, and the pleasant relations which he had maintained with the members of the service, were paid by Dr. Drapes (Enniscorthy), Dr. Harvey (Clonmel), Dr. O'Neill (Limerick), Dr. M. J. Nolan (Downpatrick), Dr. Finnegan (Mullingar), and Dr. Dawson (Dublin).

Dr. GRAHAM then read the address, which was enclosed in a beautifully-designed cylinder, decorated with two enamelled plates, graphically representing the difference in asylum conditions in 1890 and 1910, and resting on a pedestal of Connemara marble.

Sir GEORGE O'FARRELL, in the course of his reply, referred to his happy relations with his colleague, Dr. Courtenay, and with the staff of the Lunacy Office, and, adverting to the reference which was made in the address and the speeches to the improved condition of the insane in the different classes of asylums in Ireland, said he could not claim to have been more than a factor in effecting that improvement, for without the co-operation of all the members of the service his efforts would have been like those of Sisyphus, wearisome and unproductive. He was proud that at the end of his twenty years' service they should still hold him as their enduring friend. (Applause.)

The proceedings then concluded.

(*Irish Times*, October 6th, 1910.)

OBITUARY.

ROBERT BAKER, M.D.

Born February 12th, 1843. Died August 18th, 1910.

Robert Baker was a member of an old Quaker family which for many generations lived in the Cleveland district of North Yorkshire. He was the third son of John and Mary Baker, and was born at Thirsk on February 12th, 1843. Educated at the Friends' Schools at Ackworth and York, he afterwards had a distinguished career as a medical student at Edinburgh, where he became M.D. in 1864. He also studied in Paris, and was House-Surgeon to Syme and Resident Physician to the Royal Infirmary, and President, Royal Medical Society of Edinburgh.

In 1867 he married Jane Martha Packer, of Thirsk. At one time he practised medicine in that town, but in 1872 he went to York and succeeded William Pumphrey as licensee of Lawrence House. Two years later he was appointed Medical Superintendent of The Retreat, York, which post he held until 1892, when, owing to failing health, he resigned. He remained, however, as Consulting Physician until his death on August 18th, 1910.

One of his brothers, Gilbert Baker, F.R.S., of Kew, distinguished as a botanist, is still living. His widow and one daughter and two sons survive him.

During Dr. Baker's *régime* at the Retreat this hospital for the insane was considerably enlarged by the erection of pavilions, a detached house, an adjoining property, was purchased in order to increase the accommodation for patients apart from the main buildings. He strongly advocated the use of Turkish baths in the treatment of insanity, and a very complete suite of rooms was erected for this purpose.

After a severe attack of typhoid fever, which greatly undermined his health, Dr. Baker went to America in 1884, and, accompanied by the late Dr. D. Hack Tuke, visited a number of institutions for the insane.

When there he called on the Quaker poet Whittier, then advanced in years, and afterwards he looked back with great pleasure to this interview.

Dr. Baker took a great interest in the Medico-Psychological Association, and in 1892 was elected President—the same year that the centenary of the Retreat was celebrated in York.

Dr. Baker possessed great charm of manner, and was peculiarly persuasive in his dealings with his patients. He was, therefore, in a remarkable degree successful in inducing them to follow his advice. His kindness and personal attention to the less intelligent patients was especially marked, and the manner in which the faces of these would light up when he paid his periodical visits as consulting physician was witness to the great esteem in which he was held by his old patients. One was reminded of the words of Samuel Tuke in speaking of the insane—"In the wreck of the intellect the affections not infrequently survive," and it seems reasonable to conclude that Dr. Baker was influenced by the same considerations which led Conolly to write—"Constant intercourse and constant kindness can alone obtain the entire confidence of patients, and this confidence is the very key-stone of successful management."

Dr. Baker was not a voluminous writer; the following articles were published by him: "Case of Delusional Insanity; Autopsy," *Journal of Mental Science*, 1878; "The Insane in United States and Canada," *The Friend*, 1885; "Ten Years' Experience in the Use of the Turkish Bath in the Treatment of Mental Ill-health," *Journal of Mental Science*, 1889; "Notes on Some Asylum Specialities in use at The Retreat, York," *ibid.*, 1890; "Notes Descriptive of a New Hospital Villa at the York Retreat," *ibid.*, 1891; "Presidential Address on the Retreat Centenary," *ibid.*, 1892.

The following note is added by one who knew Dr. Baker well:

"I knew Dr. Baker well and intimately from the time he was a medical student in Edinburgh. He was popular as a student, and his career was a successful one. In midwifery he won the Gold Medal in Dr. Matthews Duncan's class, in itself no small distinction. He was fortunate enough to become Resident to Mr. Syme, who was then at the zenith of his fame, in the surgical wards of the Royal Infirmary of Edinburgh, and in this post, which was eagerly coveted, he greatly distinguished himself by his devotion to his work and his successful management of the frequent difficulties with which he had to deal. On the recommendation of Mr. Syme he afterwards became assistant to the late Mr. Bickersteth, of Liverpool, with whom he remained for about two years, till, an opportunity arising of beginning practice in his native town, he settled there. Soon after he was joined in practice by his brother-in-law, and, with him, he speedily laid the foundation of what promised to be a large and successful practice. But his stay in Thirsk was short, for, five years after going there, he went to York and turned his attention to that branch of practice to which nearly all his professional life was devoted.

"Dr. Baker possessed in a high degree the capacity for making friends. He was peculiarly kindly, pleasant and attractive in manner, and those whom he so attracted usually became his attached friends for life. To such as needed help he was ever willing to extend a helping hand, and by them his ready kindness will always be gratefully remembered. His last illness was a long and trying one; it was borne with wonderful fortitude and resignation, and his memory will ever be cherished by the sorrowing friends he has left behind him."

REPORT OF THE BRITISH COMMITTEE OF THE INTERNATIONAL INSTITUTE FOR THE STUDY OF THE CAUSES AND THE PREVENTION OF INSANITY TO THE ANNUAL MEETING OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION IN 1910.

Since its formation, in 1907, the British Committee of the International Institute for the Study of the Causes and the Prevention of Insanity has met on four occasions in London. Two of the meetings were held subsequently to the reunion of the International Committee in Amsterdam, in 1907, and two since the last meeting of the International Commission at Vienna, in 1908. The resolutions adopted at the International meetings were communicated to the British Committee. The question as to what steps should be taken by the British Committee in order to support the work and objects of the International Commission always occupied a prominent place in the discussions of the British Committee, but it was felt to be inexpedient to assume any definite attitude or to approach any public body, society, or private individual, until it was definitely known what finan-

cial support was to be given to the Institute by the various governments which had sent delegates to take part in the deliberations of the International Commission at Vienna.

The Committee desire to draw the attention of the members of this Association to the report of Drs. John Macpherson and Percy Smith, the official delegates of the British Government to the meetings of the International Commission at Vienna, which is published in the July number of the *Journal of Mental Science*. Therein they will find the history, constitution, and aims of the proposed Institute described in detail.

Of the twenty members of the British Committee nominated by the Medico-Psychological Association two have been removed by death, namely, the late Drs. Conolly Norman and W. W. Ireland. Of the remaining eighteen, eleven have not attended any meeting, and six of these have evinced no interest whatever in the work of the Committee, having neither attended meetings nor apologised for absence. It is desirable that any member who has no wish to remain on the Committee should inform the Secretary to that effect.

J. H. MACDONALD, *Secretary*.

THE LIBRARY OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Library is open daily for reading, and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from the lending library belonging to that firm should any desired book not be in the Association's Library.

The scheme for the distribution of foreign journals has met with a gratifying response. It is hoped that in future years this method of keeping members in touch with the development of psychiatry in Europe and America may be considerably extended.

The following members have very kindly consented to purchase the journals indicated below, and to forward each number to the Library at the expiration of a fortnight:

Dr. R. H. Cole.—*Revue de Psychiatrie*.

Dr. F. H. Edwards.—*Archives de Psychologie*.

The Committee would be greatly indebted to any other member who is prepared to make a similar offer.

The following books have recently been added to the Library:

Morton Prince.—*Subconscious Phenomena*.

Kraepelin.—*Psychiatrie*, 8th edition, vol. ii.

Applications for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos St., Cavendish Sq., W. Other communications should be addressed to the undersigned at Long Grove Asylum, Epsom.

H. DEVINE } *Hon Secretaries*,
B. HART } *Library Committee*.

NOTICES BY THE REGISTRAR.

There will be an examination for the Certificate in Psychological Medicine and the Gaskell Prize early in July, 1911.

Essays for the Bronze Medal must reach the Registrar not later than June 14th, 1911.

There will be a preliminary examination for the Nursing Certificate on the first Monday in May, 1911.

There will be an examination for the Nursing Certificate under the old regulations on the second Monday in May, 1911. The last of these examinations will be

held on the second Monday in November, 1912, after which date the new regulations for the Nursing Certificate will come into force in their entirety.

For further particulars apply to the Registrar.

The following candidates have passed the examination for the Nursing Certificate, November, 1910.

Valkenberg Asylum, South Africa.—Joseph Cohen, Howard Finlay, Annie Stephens.

Pretoria Asylum, South Africa.—Elizabeth Rymer Creagh, Annie Douglas McAffer, Hester Schutte, Hendrika Johanna van Ginkel, Margaret Winifred Roberts, Amy Sansom, Hermanus Lodowicus Johannes Kleynhans, James Milne Robertson, Donald D. McNaughton, Agnes Mary Ruddell.

Bucks County Asylum.—Arthur Walter Arnott, George Smithfield Austins.

Derby County Asylum.—Catherine Farrell, Ann Sarah Cahill.

Essex County Asylum.—Kitty Harold.

Caterham Asylum.—Annie Louisa Dodsworth Bowler, Mary Jones, Alice Violet Styles.

Leavesden Asylum.—Louisa Jessie Hopkins, Ellen Maud Williams, Ada Sims, Alice Ridgeway, Ellen Sullivan, Grace Mary Rawson, Frederick William Tibbles, Ernest George Bowell, Charles Atkins.

L.C. Long Grove Asylum.—Jeannette Sandys Reed, Selina Hard, Mabel Hard.

L.C. Claybury Asylum.—Leah Tregoning, Maud Hammond.

Norfolk County Asylum.—Maud Elizabeth Carey, Olive M. Flaherty.

Northumberland County Asylum.—Ada Mary Hall.

Notts County Asylum.—Mabel Mary Gilbert.

Shropshire County Asylum.—Arthur John Davies.

Staffordshire, Cheddleton Asylum.—Winifred Edith Hayter, Gladys E. Spence.

Surrey County, Brookwood Asylum.—Margaret Durant.

Scalebor Park, Yorks.—Richard Kellington Coulson.

Yorks, East Riding Asylum.—Gladys Spencer Robinson, Nellie Epton, Jessie Burles, Thomas Scrowston.

Yorks, North Riding Asylum.—Eva Wilson, Florence Mary Crossland.

Birmingham, Rubery Hill Asylum.—Elizabeth Ann Couch, Agnes Annie Cheffins, Lily Christa Dyer, Mabel Evans, Jessie Flixon, Phoebe Greenwood, Edith Mary Higgins, Elizabeth Manning, Minnie Louisa Oliver, Annie Pickford, Edith Isabel Sansum.

Croydon Borough Asylum.—Elsie Mabel Howard, Elizabeth Frances Johnston, Dora Allaker Stanbridge.

Derby Borough Asylum.—Harold Harry Ball, Lilian Bellamy.

Newport Borough Asylum.—James Grant Geary, Romolo D. Angeleri.

Norwich City Asylum.—Mary Sophia Savage, Mabel Maud Palmer, Lily May Connell.

West Ham Borough Asylum.—Alfred P. F. Stallard, Lucy Anna French, Kate Nelson, Mabel Brown, William Tye Melbourne Senior, Gertrude Mary Pye, William Warren Alcock.

Bethlem Hospital.—Minnie Alice Giles, Thomas Evans, Ellen Maud Lake.

Warneford House.—Annie Bird, Edith Jane Round.

Warwick County Asylum.—Agnes Annie Muntz, Ada R. Taylor, Herbert Charles Hinton, Horace T. Jackson.

Aberdeen Royal Asylum.—Jane Ann Morrice, Margaret Smith, Elizabeth Williamson, Harriet H. Kellett, Elizabeth Morgan, Kathleen Sutherland, Helen Barclay Gray, Maggie Cryle, Helen Milne, Jane A. Mowat, Jemima Cameron, Mary A. C. Wilson.

Aberdeen District Asylum.—Jane Cruickshank Low, Annabella George, George Cruickshank Reid.

Ayr District Asylum.—Agnes Barr, Mary Alexander, Margaret McQuater.

Edinburgh Royal Asylum.—Minnie Henry Gordon, Isabella Crawford, Edith Mary Black, Annie Ruxton Pirie, Alexa Burnett, Mary Mitchell Thorburn, Bessie Robertson MacInroy, Joan Theresa Flynn, Harriet Bateman.

Edinburgh District Asylum.—William Talbot, Agnes Matthew, Helena Louise Chiney.

Glasgow District Asylum, Gartloch.—Archibald Christie, Christina Laing, Margaret Edie Stewart, Mary Potts, Johann Burgess.

Glasgow District Asylum, Woodilee.—Mary C. McWilliams, Catherine Cameron, Jeanie King Gray Ferguson.

Paisley District Asylum.—Mary Morgan, George Lauchlin.

Smithston, Greenock.—Archibald MacLellan, Ewan Macdonald, Maria Shaw Ritchie.

Stirling District Asylum.—Mary Smith, Mary McKerrill, Jenny Pollock, Jeannie Taylor, Isabella McQueen, Ann Shand, Andrew McDougall, Elsie Jessie Milne.

Inverness District Asylum.—Annie Macphee, Agnes Ann Laing, Margaret Shanks Johnston, Nettie Duthie Simpson, William Macdonald.

Montrose Royal Asylum.—Jessie B. Jarvis, Robina C. Findlater, Samuel Ramsay, Frank Ritchie.

Crichton Royal Asylum, Dumfries.—Thomas Short, James Handley.

Murray Asylum Perth.—Elizabeth Dale, Elizabeth Rhoda Baldwin.

New Saughton Hall, Edinburgh.—Peter Christian, Mary A. Lumsden, John Russell, Robert Carnan.

Cork District Asylum.—Patrick Walsh, Timothy Cullinane, Cornelius O'Regan, Daniel O'Connor, Peter Carroll, John Charles Carroll, Margaret Josephine McCarthy, Eleanor Josephine Downing.

Richmond District Asylum.—Alice O'Gorman, Kate McNamara, Eugenie Finegan.

Londonderry District Asylum.—Matilda O'Connor, Jeannie Miller.

NOTICES OF MEETINGS.

Quarterly Meeting.—The next meeting will be held, by the courtesy of Dr. Goodall, at the Cardiff City Mental Hospital, on Thursday, February 23rd, 1911.

South-Eastern Division.—The Spring Meeting will be held, by the courtesy of Dr. Stoddart, at Bethlem Royal Hospital, on Tuesday, April 25th, 1911.

South-Western Division.—The Spring Meeting will be held, by the courtesy of Dr. Aveline, at the Somerset and Bath Asylum, Cotford, near Taunton, on Friday, April 28th, 1911.

Northern and Midland Division.—The Spring Meeting will be held on Thursday, April 27th, 1911.

Scottish Division.—The Spring Meeting will be held on Friday, March 17th, 1911.

Irish Division.—The Spring Meeting will be held on Thursday, April 27th, 1911.

APPOINTMENTS.

Baker, John, M.D., Medical Superintendent of the State Criminal Asylum, Broadmoor.

Booth-Jones, Charles, Third Assistant Medical Officer to the Warwick County Lunatic Asylum, Hatton.

Coombes, P. C., M.R.C.S.Eng., L.R.C.P.Lond., Senior Assistant Medical Officer of the Surrey County Asylum at Brookwood.

Emslie, Bell, M.B., Ch.B., Third Assistant Medical Officer, Stirling District Asylum, Larbert.

Foulerton, H. P., M.R.C.S., L.R.C.P., D.P.H., Deputy Medical Superintendent of the State Criminal Asylum, Broadmoor.

Hughes, William Stanley, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Medical Superintendent of the North Wales Asylum, Denbigh.

Leech, Henry Brougham, M.D.Dub., First Assistant to the Warwick County Lunatic Asylum, Hatton.

Macaskill, D. C., M.B., Ch.B., Second Assistant Medical Officer, Stirling District Asylum, Larbert.

Webber, L. M., M.R.C.S., L.R.C.P., Second Assistant Medical Officer to the Surrey County Asylum at Netherne.

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VOL. LVII.

Part I.—Original Articles.

The Diploma in Psychiatry. By T. S. CLOUSTON, M.D.,
LL.D.

THE institution of the new Diploma in Psychiatry by the Universities of Edinburgh, Durham, and Manchester, with the coincidence in my case of entering on my fiftieth year of membership of the Medico-Psychological Association—I find, alas! there are now only four names above those of Dr. Yellowlees and myself—has made a strong impression on my mind. The diploma seems the beginning of another stage of progress of our branch of science. We have in the half-century advanced all along the line, in our original research work—the core of the matter after all—in our literature, in our teaching, in our professional status, in our nursing, and in our salaries and pensions. The rate and amount of progress have been steady and considerable. Many of our younger men, I find, take that progress for granted. They scarcely realise the conservatism of the powers that be, medical and otherwise, in Great Britain, nor the former deep-rooted neglect of the public and of our profession towards anything connected with “Lunacy.” It is not, I am convinced, our administrative work nor our public usefulness alone that have helped us. It is the glamour which our science has lately cast on the public mind. Its inherent interest and its mystery have, almost more than anything else, aided our cause. I never yet had an audience of students in the class-room, or of ordinary citizens

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in the lecture-hall, or of the *élite* round a dinner-table whom I could not interest in the marvels of the human brain and the disturbances of its mental functions from the scientific point of view. The subject in its social relations is in the air at present. The man among us who fails to use this leverage for the ends of progress does not know his power. I have always cultivated an optimism in regard to the future of brain knowledge that has been unchanging and incurable. It seems to me that a retrospect and review of our position may be of interest to some of our workers. The new diploma gives me a chance of such a review.

Not taking into account our administrative, philanthropic, and official advances, the recent course of psychiatry may be said to have been played in five acts: (1) The teaching of it to students; (2) its taking visible form and voice in the shape of an Association and Journal; (3) its capture of a place in the general profession through the compulsory instruction in its main facts of all medical students; (4) its seizure and utilisation of the laboratory idea; (5) its long struggle for a registrable hall-mark—now happily attained. Those events have all been intimately related to each other one leading on to the next, and being its necessary corollary.

(1) The teaching of psychiatry goes much beyond the half-century. We know that Esquirol taught medical students in Paris in the early part of the nineteenth century. Great Britain, Germany, Austria, America and Italy, as well as the lesser European countries, soon followed suit. Among those who have passed away—Morison, Conolly, Guislain, Rush, Schroeder, Van der Kolk, Greisinger, Westphal, W. A. F. Browne, Meynert, Krafft-Ebing, Skae, Laycock, Hack Tuke, Sankey, and Lombroso are a list of which any department may be proud. Sir Alexander Morison began to lecture on the subject in London in 1823, being the first teacher in this country, so far as I am aware. He began clinics at Hanwell in 1839. In Edinburgh, our medical students first had the opportunity of such teaching in the year 1841 by Dr. Mackinnon at the Royal Edinburgh Asylum. Every school of medicine in the world has now one or more recognised teachers of psychiatry. Its teaching is combined or mixed up with neurology in many schools in Europe and America. Theoretically they should be taught together; practically, they are more efficiently taught

apart. The psychiatrist is apt not to know or care much for his neurology; the neurologist is apt to fail in his practical psychiatry. The teaching of psychiatry has this advantage over almost every other subject in medicine—it is more full of human nature. The teacher who makes it dull is no teacher at all.

Our Association was not neglectful of the claims of teaching. In 1892, its Council passed a resolution that a “board of education” should be appointed “to consider all questions affecting medico-psychological teaching.” That Board formulated a “scheme of instruction” for the guidance of teachers in insanity.

(2) The next stage, the organised association of those interested in psychiatry, took place in 1841, and fourteen years afterwards—in 1855—that Association founded this Journal under the forceful editorship of Sir J. C. Bucknill, then Dr. Bucknill of the Devonshire County Asylum and in 1862 the joint author with Dr. Hack Tuke of our first great British text-book, *The Manual of Psychological Medicine*. British psychiatry owes more to the *Journal of Mental Science* than to any other factor. The forty-five psychiatrists who in 1841 gave their written approval of the formation of the Association have now grown to 680, and comprise almost all those who form our department of medicine. It is a living body with many activities. To realise what it and the Journal mean to us, just imagine ourselves without them! We should feel like the mere units of a victorious army that has been disbanded. Psychiatry would largely be helpless, voiceless, and unprogressive in our country.

(3) The third stage of our progress was the effort to make instruction in psychiatry an essential and compulsory part of the medical education of all students. We early recognised the loss to our science and the deprivation to general medicine of an isolated position. Morison again led the way by petitioning the University of Edinburgh in 1823 that “lectures might be attached to the course of study to the medical students.” He petitioned the Government to the same effect in 1838. Dr. Boyd, of the Somerset Asylum, a scientist of industry and zeal, wrote an article on “The Necessity of Insanity as a Branch of Medical Education” in our Journal of 1859, in which he pleaded vigorously for his thesis. Laycock,

as the Professor of Medicine in the University of Edinburgh, had in 1857 instituted a course of lectures on medical psychology, but those were supplementary to his ordinary lectures, and were not compulsory on the students. Most of us attended them, however, and they had a marked effect in directing the minds of many Edinburgh students to the subject. He was an enthusiast and an idealist, subtle and elusive, but fascinating in his ideas of "mind and brain." In 1875, he obtained the sanction of his University in putting a question in mental diseases for the M.D. degree for the first time in this country. The Universities of London in 1887, and the University College, Dublin, afterwards followed suit, at the suggestion of Dr. Hack Tuke in the one case, and Dr. Conolly Norman in the other.

Psychiatry was made a compulsory subject of study for all medical students in 1893 by the General Medical Council, all the universities and licensing bodies homologating this decision within the next few years. That was the charter of our real and full incorporation into general medicine. It came about after much discussion and opposition. In 1888, the Council had made a recommendation that the study of insanity was "desirable" for all candidates for examination. I had, in my evidence before the Scottish Universities' Commission in 1890, made the following recommendations :

"1st. That all students should be compelled to attend a minimum course of practical instruction of, say, fifteen clinical demonstrations—residence for six weeks in an asylum as clinical clerk being accepted in lieu of this. 2nd. That all candidates for examination for the M.B. degree be, clinically at least, examined in this subject." Many others had pressed the same views on the General Medical Council, Universities, and Licensing Authorities. Sir John Batty Tuke in the Council was of the utmost service in its coming to the final resolution in regard to this matter.

One of the most curious things connected with this important event in the history of psychiatry was the small impression it seemed to have made at the time on psychiatrists and in current medical literature. I find no notice taken of it in the *Journal of Mental Science* except, almost casually, in two sentences of Dr. Conolly Norman's Presidential Address in 1894 (*Journal of Mental Science*, vol. xl, pp. 489 and 490). It

seemed generally to be considered of little importance, or was accepted as a matter of course. We, in fact, captured our place in medicine and were absorbed in the quietest possible way, with no flourish of trumpets, though, as Dr. Norman said, the action of our Association had "stimulated" the Council into insisting upon instruction in mental diseases in the new curriculum. No rules or regulations were at first made by the universities as to an examination in psychiatry for the M.B. degree. As a matter of fact some of them appointed examiners on the subjects, but few questions were put to the candidates for some time, and the majority of the candidates still received their degree without any test in our subject. In Edinburgh, both in the University and at the Colleges, I have discouraged the putting of questions in mental diseases, simply because I knew that the students had too much to get up already. As a psychologist I realised the limitations of the human brain. But I insisted on a regular attendance on my teaching, especially the clinics. That, I thought better than any cramming for the purpose of passing an examination. For our M.D. and M.R.C.P.E. it is one of the optional subjects.

(4) We now come to the fourth important event in the teaching and study of psychiatry. That was the institution of special laboratories for the investigation and teaching of the pathology of the subject. The lead in this movement was taken by Dr. Bevan Lewis at Wakefield. Chiefly through his magnificent work there, as brought out in his *Text-Book of Mental Diseases* in 1889, was the psychiatric conscience roused to feel that we had not been doing our duty in omitting to use, as one might, for the advance of science, for the education of our assistant medical officers and students, and for the good of humanity, the plethora of pathological and clinical material at our disposal. No doubt many individual physicians had done good original work in the small pathological rooms attached to various mental hospitals. At Morningside, at Wakefield (under Sir James Crichton Browne's vehement initiative) and elsewhere pathologists were appointed to asylums. The London County Council first established a fully equipped laboratory at Claybury in 1895, putting Dr. Mott, a man of European reputation, in an independent position at the head of it. The Scottish asylums combined in 1897, and by a voluntary effort established a pathological

laboratory for the asylums of the northern kingdom, with Dr. Ford Robertson as our superintendent. Two of our especial features were the training of the assistant medical officers of asylums in modern pathological methods and technique by means of special courses of instruction, and the circulation of microscopic slides showing recent work. Lancashire, both at Rainhill and Prestwich, soon took up the running, and our opportunities in Scotland have lately been trebled through the establishment of the Western Institute by Dr. Oswald and Dr. Easterbrook's wide-reaching scheme of research at the Crichton Royal Institution. Drs. Mott, Ford Robertson, Campbell, Orr, Shaw Bolton, Rows, etc., not to speak of the acting superintendents of mental hospitals, have not only done original work of the highest importance, but have put a new face on British psychiatry. Our physician-superintendents and assistant physicians of mental hospitals and our medical students have now, at these laboratories under the guidance of their superintendents, the opportunity of seeing and learning the latest methods of section-cutting and staining, of bacteriology as applied to mental diseases, experimental work, the employment of serums and vaccines, and clinical psychiatric pathology. In them much of the instruction required for passing the examination for the new diploma in psychiatry can, and will, no doubt, be given. As a part of the ordinary teaching of the classes of mental diseases, too, they will be more and more available. Their importance cannot fail to increase year by year. Great Britain will thereby be enabled to keep up with the Continent and America in her scientific methods and resources for psychiatric work.

The fifth and last stage—for the present—attained is our new diploma, our hall-mark, the symbol of our academic coming of age. I had taken a keen interest in this matter, and while the events which led up to it were fresh in my mind I sat down to write an "Occasional" for this number of the Journal; but the whole question of our progress grew on me and led me to write this article, for the length of which I am inclined to apologise. Our younger members, however, may thereby better realise its great importance. On them its further stages of progress will depend. The event should stimulate and encourage them. "*Quasi cursores vitai lampada tradunt.*" We are handing over the lamps to them. We see

with joy in every recent number of this Journal the certain proofs that they will carry them forward in the scientific race. It is worth while tracing the gestation of this our new-born psychiatric child.

As early as 1869 Laycock—always before his time in things psychiatric and neurological—made a proposal to institute “a suitable scientific and practical examination for candidates for asylum appointments,” and the Scottish Commissioners in Lunacy approved of this scheme. But it came to nought. In 1885 the Medico-Psychological Association, on a report of its Council, decided to institute a special examination in psychiatry, giving a certificate of competency (“M.P.C.”) to those who passed. It formulated conditions and rules for such an examination, appointed examiners for the three Kingdoms, and, in the year 1896, the first examinations were held in London and Edinburgh, thirteen men receiving the certificate. The examination was taken up warmly by the teachers of mental disease in the three kingdoms, and went on year by year till 1893, when, as we have seen, the General Medical Council made insanity a compulsory subject. For some reason that checked the flow of candidates. The certificate, though it had been of great service—some 328 men have taken it up to this time—was generally felt not to be of sufficient weight and authority. It was not registrable, and it was not academic. Its examination was not wide enough in its scope. The ancillary sciences were not recognised in its examinations. It was, in fact, too narrow and not scientific enough. It had done its work and served its day, and a substitute was clearly needed.

A word should be said here about the “Gaskell Prize,” which was a benefaction by his sister, Mrs. Holland, in 1886 in memory of Mr. Gaskell, one of the Commissioners in Lunacy, awarded to those who, having already taken the M.P.C., chose to go in for an honours’ examination, but was not given at all if the candidates did not attain a certain high standard. The histology of the brain and psychology were added in addition to the ordinary subjects of the M.P.C. examination. It has been taken by eleven men, the list including some of our most distinguished young psychiatrists, many of whom have since done good original work. We all hope this prize may still be given for an honours’ examination

in connection with the new diploma. It will thus be most useful, and will fitly commemorate the distinguished psychiatrist whose name it bears.

The whole subject of giving registrable diplomas in medicine and surgery was brought before the Scottish Universities Commission on the initiative of Sir Thomas Fraser, then Dean of the Faculty of Medicine in Edinburgh University, in 1890. At his instigation the Senatus of that University placed before the Commission a recommendation that special diplomas should be given, and instanced the following subjects which appeared to justify the institution of diplomas, namely, public health, obstetrics and gynæcology, dentistry, ophthalmology, laryngology with otology and rhinology, mental diseases and medical jurisprudence, special and higher examinations being instituted in each subject for that purpose, open to all medical graduates. The proposal was not backed up by any of the other Universities except Edinburgh. It was urged by some leaders in the profession that such diplomas would "degrade" medicine. It was not well received by the medical press, but in the interest of higher education Sir Thomas Fraser strongly pressed the matter for Edinburgh in his oral evidence before the Commission, which gave the asked-for permission.

I also thought the time was fitting for an endeavour to secure a better position for psychiatry when the Scottish Universities' Commission was sitting in 1890. After laying before them a short history of the teaching of psychiatry and pointing out how it was then defective and was handicapped in various respects, I made, in addition to the two recommendations I have quoted, the following :

"That a registrable diploma in mental diseases be instituted by the University (I was speaking for Edinburgh), the standard for this being far higher and of wider scope than the ordinary examination for the degree. It should include, in addition to psychiatry proper, brain anatomy, physiology and pathology, psychology and neurology in so far as these are related to mental diseases. This would be intended for specialists in mental disease and would tend towards the diffusion of knowledge and interest in the higher scientific aspects of disordered mind, and would be likely to stimulate original work in the department by able and cultivated men, and so to benefit medicine and humanity."

Edinburgh University alone asked for authority to institute diplomas in special subjects, and this request was granted in 1892 (Ordinance No. 16, Edinburgh No. 1).

Tropical diseases and Hygiene, having meantime come urgently into public notice, was the first subject in which, in 1905, a special diploma was given in our University. Public health had been provided by a special Science Degree in Edinburgh, but elsewhere the D.P.H. had been instituted and soon became a statutory requirement for all medical officers of health in the Kingdom.

The instant success of those two diplomas have demonstrated beyond cavil their necessity and undoubtedly prepared the way for a similar step in psychiatry. The man came with the need, and he came, like the founders of our Association, not from the ranks of teachers or from a university centre, but from a county asylum, and with thirty years' experience as a medical officer in various mental hospitals. Dr. D. E. Thomson, of the Norfolk Asylum, read a thoughtful and convincing paper at our quarterly meeting in London on May 19th, 1908, on "The Teaching of Psychiatry," in which, after pointing out the deficiency of present arrangements, he said, "I am absolutely convinced that the success of any scheme of reform in the medical aspect of asylum, or rather, lunacy work, depends entirely upon the provision of definite post-graduate training of our future alienists, and this post-graduate training can only be organised and rendered effective if instituted by the universities or other teaching bodies as suggested by Dr. Maudsley, and a diploma in mental medicine be granted, without which no one can aspire to lunacy work or appointments." Dr. Thomson thereby took a broad scientific and a business-like view of the situation, which was instantly seen by those who heard the paper. In the discussion which followed everyone, from Dr. Savage, the senior psychiatrist present, to Dr. Orr, the youngest, agreed with Dr. Thomson, and, from different points of view, urged that his recommendations should be carried out. Dr. Mercier said, "The most important matter of all, perhaps, was to get the licensing and examining bodies to grant diplomas and degrees in that most important subject. Until recognition of that was secured I do not think the study will ever be promoted successfully."

Dr. Thomson proposed a resolution at our Annual Meeting

in July, 1908, and the discussion on this was heartily in its favour. Dr. Lewis Bruce combated the only objection that had been made that the carrying out of the resolution might cause a greater difficulty than existed in getting assistant medical officers for asylums by urging that "it would make the service much more attractive than at present."

The question was formally remitted to the Education Committee of the Association, which authorised Dr. Mercier, as President of the Association for 1908-9, to send a communication in its favour to all the universities and other examining bodies in the United Kingdom. The subject did not suffer in Dr. Mercier's eloquent presentation: "My Association is of opinion that the institution of a diploma would impose a high standard of acquirement in the officers of asylums, would stimulate the scientific study of insanity, and would have an effect in widening and deepening our knowledge of the subject, comparable with the effect produced in public health and tropical diseases by the institution of diplomas in those subjects."

Dr. Mercier's letter at once drew many inquiries from the universities and examining bodies, in response to which certain "explanations" and a series of "suggested regulations" for the consideration and guidance of the examining bodies were sent them. A model syllabus is now being prepared by a sub-committee.

I cannot speak as to what has been and is being done in other universities and examining bodies, but it may be of some interest to many of the members of the Association if I give a short account of what we have done in Edinburgh.

On the reception of Dr. Mercier's letter, Sir Thomas Fraser took the matter up with enthusiasm. I feel that psychiatry and we who are its disciples stand much indebted to him. He has had the happiness of bringing to a successful termination this work he began in 1890 in the greatest of all the schools of medicine in Great Britain. He first obtained the approval of the Medical Faculty, the Senatus, and the University Court, to the general principle of a diploma in psychiatry. The Faculty of Medicine then appointed a committee to consider the question and draw up a syllabus with time tables, etc. The committee consisted of Profs. Greenfield (pathology), Schäfer (physiology), Robinson (anatomy), Mr. W. G. Smith

(Lecturer in Psychology), Dr. G. M. Robertson and myself, with Sir Thomas Fraser as Convener. This Committee met frequently, and carefully considered in the first place the suggested course of instruction put forward by Dr. Thomson and our Association. We altered that in some of its details and we did not endorse the proposal of having optional subjects, but we kept on the main lines of the scheme of the Association. There was, as might have been expected in a Committee representative of so large a range of science, a tendency to set the standard too high. There was a good deal of give and take among us. For myself I was impressed with the great advantages of a committee of such wide scientific reach as compared with one composed of specialists.

We finally decided that the courses of instruction and the subsequent examinations should consist of: (1) The anatomy of the nervous system; (2) the physiology, histology and chemistry of the nervous system; (3) pathology, macroscopical and microscopical, of the brain and nervous system; (4) bacteriology in its relation to mental diseases; (5) psychology and experimental psychology; (6) clinical neurology; (7) psychiatry; (8) clinical psychiatry.

The duration of the studies (nine months), the hours of attendance on each course, the fees, and the two examinations were all arranged for. A special exemption to the regulations as to attending lectures, etc., was made for three years from October 1st, 1911, in the case of "such candidates for the diploma as are at the time medical officers of asylums who have held office for at least two years prior to October 1st, 1911." They will, of course, have to pass the examination. The University Court on January 16th, 1911, approved and sanctioned the Regulations we sent up to it.

I can imagine many medical officers of asylums feeling discouraged on looking over the list of subjects to be studied. But I think a little consideration will convince them, as it did me, of the reasonableness and the ultimate value of setting the standard high. The instruction in the ancillary subjects will widen their scientific horizon and will make future original work easier and more imperative to our assistant medical officers. Committees of asylums will pay higher salaries, and will arrange for the necessary absences of their staff. It will pay all round in fact. Senior assistant medical officers

will acquire such a professional position thereby that committees will be more likely to provide separate houses and facilities for marriage for them. The glamour of science, of which I spoke, will induce for us all greater respect in the minds of the laity and also a greater self-respect. I have no sympathy with the excuse that assistant medical officers have no time to get up such a number of new subjects. They have plenty of spare time for tennis and other amusements. It will keep their minds keen and on a higher level. The diploma will make a sharp difference between the men who go into mental hospital work for a year or two and those who mean to make it their life's work. It will come to be essential for those who are candidates for the higher appointments. No man will hereafter venture to set up as a consultant in mental diseases except he has this diploma. If it is looked on as a duty it will raise our ethical standard. The dignity and the importance of psychiatry will be more realised. The enthusiasm and the joy of making new discoveries in an unknown land will be roused. If I were now an assistant medical officer I should without hesitation at once set myself to obtain the diploma.

On the Wassermann Reaction in 172 Cases of Mental Disorder (Cardiff City Mental Hospital) and 66 Control Cases, Syphilitic and other (chiefly from Cardiff Infirmary), with Historical Survey for the Years 1906-10, inclusive: Comments and Conclusions.⁽¹⁾ By H. A. SCHÖLBERG, M.B.Lond., D.P.H., Pathologist and Bacteriologist, Cardiff Infirmary and the City Mental Hospital, and EDWIN GOODALL, M.D.Lond., B.S., F.R.C.P., Medical Superintendent, Cardiff City Mental Hospital.

THE sero-diagnosis of a syphilitic infection, commonly known as the "Wassermann reaction," is based on the work published by Bordet in 1899, and Bordet and Gengou in 1901. It was there shown that the absence of hæmolysis could be made available as a naked-eye test indicative of a specific infection, and that the occurrence of hæmolysis negated the existence

of such infection. This reaction they showed was due to the fact that the anti-bodies produced by an infection were able to fix complement in the presence of the corresponding antigen, so that an attempt to complete an hæmolytic system after complement had been absorbed was ineffectual, and the homologous red blood-corpuscle remained intact, though exposed to the action of an inactivated homologous hæmolytic serum.

In 1906, Wassermann applied the method of Bordet and Gengou to demonstrate the presence of the anti-body arising from a syphilitic infection. This was first done by animal experiment. A monkey was infected with syphilis and the virus transferred to others. The tissues of the animal originally infected, which showed the *Treponema pallidum*, were then taken and emulsified so as to supply antigen, and subjected to the action of the inactivated blood-serum of the animals subsequently inoculated, in the presence of complement obtained from the freshly shed blood of a guinea-pig. After a suitable interval for the combination of these fluids to take effect, there was added thereto an inactivated hæmolytic serum and the homologous red blood-corpuscle. No hæmolysis took place, showing that the infected monkeys had been able to produce a substance which could unite with antigen and fix complement. They showed, in fact, a reaction of immunity to the syphilitic virus. The next step was inevitable. The blood-serum of the human being suffering from syphilis was taken and subjected to the same test, the antigen being taken both from an infected monkey or an infected human fœtus. The result was the same; the infected human being showed a reaction of immunity. The next confirmatory step was to show that the individual who was not suffering from a syphilitic infection must fail to give the reaction. The experiment proved—and it has been subsequently confirmed by many other observers—that the non-syphilitic serum cannot fix complement in the presence of syphilitic antigen, *i.e.*, that, carrying out the test as described above, the hæmolytic system can always be completed, and a solution of the red blood-corpuscles effected by the homologous serum in all non-syphilitic subjects. The reaction described is now known as the “Wassermann reaction” for the diagnosis of syphilis, and as such has established itself as the most certain means of deciding the existence of this disease in the human subject.

It will not be necessary here to describe in detail the various steps of the reaction. We would point out, however, that in carrying out the test we have taken reasonable precautions to secure our results under uniform conditions. The antigen has been always freshly prepared, the suspected blood-sera have been invariably tested at the same time as known syphilitic and non-syphilitic sera, and the *titre* of the hæmolytic serum and the complement used determined at each series of observations. The test-tubes in which the reaction took place were numbered and bore no indication of the nature of the cases dealt with. If the results failed in the control experiments, all the observations made on that date were rejected and repeated on another occasion. We wish to draw particular attention to this point, for the results obtained have not yielded, in the cases drawn from the Cardiff Mental Hospital, such a high percentage of positive results as those published elsewhere. At the same time, our results obtained from material supplied by the Cardiff Infirmary give figures which are in consonance with those of other observers, and afford corroborative evidence that the methods employed were adequate and conclusive.

Salient Points abstracted from the Principal Literature of the past Four Years concerning the Wassermann Reaction in Paralytic Dementia and other Mental Disorders.

As to the *frequency of the reaction in the serum*, statements vary. Plaut, Boas and Neve, Citron, Foerster, Marinesco, Fischer, Nonne, state that it is obtained in 100 *per cent.* of the cases; Wassermeyer and Bering, Hubner, Lesser, in from 90 to 95 *per cent.*; in cases from the literature, according to Smith and Candler in their article written in 1909, 86.6 *per cent.*; bacilli in 80.9 *per cent.*; Muirhead obtained it in 76.7 *per cent.*, Noguchi in 65 *per cent.*; Marie, Levaditi and Yamanouchi in 59 *per cent.* (see results in cerebro-spinal fluid by the last-named authors given below).

As to its *frequency in the cerebro-spinal fluid*, the like variability of statement obtains. Eichelberg gives 100 *per cent.*; Plaut, Marinesco, Wassermann, Marie, Levaditi and Yamanouchi; Raviart, Breton and Petit; Nonne; Nonne and Holzmann ("admitted on all sides"); Smith and Candler; Morton, over 90 *per cent.*; Mott, Candler and Henderson; various authors

(432 cases collected by Noguchi), 90 *per cent.*; Williamson; Stertz; v. Kaffka; and the general literature, according to Smith and Candler, and Ernest Jones, 85 to 90 *per cent.*; Wassermann and Plaut (quoted by Hubner), 78 *per cent.*; Marie and Levaditi, 73 *per cent.*⁽²⁾; Noguchi, 73 *per cent.*; Muirhead, 71.4 *per cent.*; G. Meier, 70 *per cent.*; Boas and Neve, 52 *per cent.*; Wassermeyer and Bering, 50 *per cent.* (these last two authors remark upon the difference between their results and those of other writers, but offer no explanation).

Smith and Candler state that, whereas Marie and Levaditi in their earlier work obtained positive results in 74 *per cent.*, in their later ones (with Yamanouchi) these amounted to 93 *per cent.* Similarly, Wassermann and Plaut, in earlier cases, 78 *per cent.*; Plaut, in a later series, 98 *per cent.* How far this is due to improved technique it is not possible to say; it may be that the use of the antigen has not been always carried out under the same conditions, for an old antigen will give a higher percentage of positive results than one freshly prepared. We shall, furthermore, have occasion to refer later to the work of the Danish observers, Boas and Neve, who, whilst obtaining not more than 52 *per cent.* of positive results with the usual amount of ambocceptor, recorded from 90 to 100 *per cent.* with double the quantity.

The figures given by some other workers in respect to the frequency of the reaction are not cited, because it is not stated with which fluid—serum or cerebro-spinal fluid—the figures were obtained; in some instances the figures given appear to be the aggregate of results obtained in both media.

There is very general agreement amongst writers that in a suspected case of general paralysis a positive reaction in the cerebro-spinal fluid practically means the existence of that disease, as this reaction is only obtained otherwise in lues of the central nervous system or meninges (and rarely then) and in tabes. Smith and Candler quote the literature as showing a positive result in only some 50 *per cent.* of cases of tabes. In syphilis without affection of the nervous system the reaction is negative.

As to the *relative frequency of a positive reaction in the serum and cerebro-spinal fluid*, there is a notable discrepancy between the statements of certain French workers (Marie, Levaditi and Yamanouchi, Raviart, Breton and Petit) on the one hand, and

German, Danish, and Italian and other workers (Plaut, Stertz, Fraenkel, Foerster, Wassermeyer, Boas and Neve, Rossi, Marinisco) on the other. Whilst the former maintain that the reaction is more frequently obtained, or is more definite or reliable, in the cerebro-spinal fluid, the latter state that it is more constant or more intense in the serum. An exception is Eichelberg, who agrees with the French observers. Jackowski and Raichman cannot admit that the reaction predominates in either fluid.

Plaut, Nonne, Wassermeyer and Bering have not found the cerebro-spinal fluid positive with negative serum; Eichelberg and others have.

As to the *variability of the reaction in different stages or phases of the disease*, we find the following statements made.

Maslakowitz and Liebermann (this in respect to syphilis only) found, "in common with all other authors," positive results much less frequently when syphilis was of long duration.

Marie and Levaditi.—The slighter manifestations present negative results; the like occurs in cases of slow progress with remissions. They explain the comparatively low figures (73 *per cent.* of positive results), in comparison with German workers, obtained by them with cerebro-spinal fluid on the ground that their cases were in all stages of the disease, slighter manifestations usually giving a negative reaction, graver ones a positive. Thus, analysing their cases, they found that they obtained a positive result respectively in 10 *per cent.*, 77 *per cent.*, and 99 *per cent.*, according to the stage of the malady. They conclude that the anti-bodies develop in the cerebro-spinal fluid, with the progress of encephalo-meningeal changes, a conclusion fortified by the observation that the positive reaction becomes more marked in a given case with the lapse of time. (The cerebro-spinal fluid, re-examined after an interval of some weeks, showed "an increased richness in active principles." This was accompanied by an aggravation of clinical symptoms.)

In a later series of observations (with Yamanouchi), the authors obtained 93 *per cent.* of positive results in the cerebro-spinal fluid, notwithstanding that they expressly state that the patients were in different stages of the malady, so that their explanation of the low percentage obtained in the earlier series does not hold good.

Marinisco states that the serum reaction exists from the

first, and is not modified by amelioration in the patient's condition.

Plaut.—The reaction is quite evident in the earliest stages in the serum and the cerebro-spinal fluid. Intensity of reaction and severity of symptoms are not parallel.

Levaditi, Raviart, and Yamanouchi (in respect of syphilis).—In tertiary syphilis of eleven to twenty years' duration, the serum reaction is weaker than in secondary (earlier) syphilis. This result is, on the whole, such as one would expect, for it may be said that during the secondary stage the signs are, as a rule, those of an active reaction of the organism to an infection, and the strength of the serum is an index of the changes taking place. The quiescent stage of syphilis is the tertiary period, and is shown by the relative weakness or absence of the serum reaction. If, now, a recrudescence of the disease occurs, in which the changes are chiefly localised to the nervous system, the clinical manifestations may be those of general paralysis, and a reaction which had been previously weak or absent is now reinforced by the increased production of anti-body. Hence it follows that in general paralysis a high percentage of positive results is found, particularly so when it is borne in mind that of late syphilitic manifestations affecting the brain this one is particularly destructive of nervous tissue.

Jarkowski and Raichman found the reaction positive in the serum and cerebro-spinal fluid in four cases of general paralysis in progress, negative in the cerebro-spinal fluid in one case in the initial phase, and negative in one case in remission.

v. Kafka obtained a positive reaction in five cases of the demented type of the disease during remission. There are cases with long-continued negative results in both serum and cerebro-spinal fluid. Once the reaction becomes + in the cerebro-spinal fluid in general paralysis, it remains so. The reaction is best in cases in the middle period of the disease, and running a course of dementia. It is almost always present in the terminal state. Seizures and remissions, unless the latter alter extraordinarily the clinical picture, do not affect the reaction.

Boas and Neve agree with Plaut that there is no definite relationship between the intensity of the serum reaction and the various forms and stages of the disease. Even in the very earliest stage, in which, according to Marie and Levaditi, the

reaction is wanting, they have always obtained a positive result.

Boas and Neve state that no variation in the strength of the reaction was noticed by them in nine cases which were examined at intermittent periods for half a year.

Rossi obtained positive results in all of fifteen cases examined, whether in progress a short or a long period (three months to four years). He found the reaction positive even in cases not very advanced.

Obregia and Bruckner examined the cerebro-spinal fluid in four stationary cases of the disease ; the oldest dated seventeen years, the most recent more than eight years. Punctures were made on two occasions, with intervals of two weeks, on the first in the lumbar, on the second in the mid-cervical region. On both occasions the reaction was negative in all cases. The serum was also examined in these cases ; in three the reaction was negative, in the fourth (the most recent) a feeble positive reaction was obtained.

Marie, Levaditi, and Yamanouchi.—The reaction is subject to oscillations in an individual case, being negative or feeble at one time and positive later on. This has usually coincided with aggravation of symptoms.

Hubner.—The result may be negative at first and positive only on the third or fourth attempt.

Hallager.—In many cases the reaction is first negative, later positive, and *vice-versâ*.

Raviart, Breton and Petit.—In three instances the reaction in the cerebro-spinal fluid became positive, having been negative three weeks earlier, and this without very apparent change in the patient's condition.

Smith and Candler agree on the whole with Marie and Levaditi that the percentage of positive results increases as the disease advances ; they give statistics supporting this.

Wassermeyer and Bering have failed to find any connection between duration of the disease, or variety of it, and the reaction.

As regards the influence of treatment on the reaction, there is much variability of statement still.

Ernest Jones cites the following opinions :—

Lesser maintains that the administration of mercury has an effect, often converting a positive reaction into a negative one.

Fischer and Meier observed cases in which the intensity of the reaction increased during mercury treatment.

Wassermann, Citron, Fleishmann, Schultze, and Butler hold that the intensity of the reaction can be correlated with the thoroughness of treatment, and that the former can be used for testing the effectiveness of the latter.

Schuster, Fraenkel, Maslakowitz, Liebermann, and Meier are unable to trace any such correlation.

We find *Edel* stating that he treated cases with mercury, atoxyl, iodine, and other drugs, but never saw a positive changed to a negative reaction.

Ensor notes that in one out of five cases of cerebral syphilis in which he failed to get a positive reaction, the patient had been treated by mercury for the previous six months.

Jarkowski and Raichman (whose material, as they state, was very limited) believe that in their cases of tabes the reaction was influenced by the administration of mercury.

Mackintosh, writing in 1909 with special reference to the effects of treatment on the reaction, found that it was not possible (at that date) to give a definite opinion as to the influence of treatment, or as to what extent the reaction can be used to indicate whether sufficient treatment has been given or not, as the results obtained seem to differ in almost every case. But one can say, as a rule, that the more complete the treatment has been the less likely is one to find the reaction present some two years after the infection.

Wassermeyer and Bering speak of the impossibility of converting a positive into a negative reaction with large doses of Hg. in *general paralysis*.

S. J. Meltzer, writing in August, 1910, states that according to some observers the reaction has become negative in 100 *per cent.* of the cases, according to others in 40 *per cent.* and less as a result of treatment with "606."

Bayley, writing in January, 1911, summarises the statements of six authors as to the effect of treatment with "606." With the exception of two, who obtained respectively "none" and "fourteen cases" negative after treatment, these state that the reaction became negative in percentages varying from 50 to 100.

As regards the effects of "606" upon the reaction in cases of general paralysis more data are needed.

As regards the *Wassermann reaction in cases of mental disease other than general paralysis* :

Raviart, Breton, and Petit report results in 323 cases. They examined the cerebro-spinal fluid, as they found it gave a more definite and reliable reaction than the serum. The number of their cases, their mental states, and the percentages of positive reactions are as follows :

Catagorie mentale.	Nombres des malades.	Resultats.		Pourcentages.	
		Positives.	Negatives.	Positives.	Negatives.
Idiotie avec epilepsie	25	9	16	36	64
Idiotie	61	21	40	34.4	65.6
Semi-idiotie avec epi- lepsie	10	4	6	40	60
Semi-idiotie	62	14	48	22.4	77.6
Imbecilité avec epi- lepsie	15	6	9	40	60
Imbecilité	73	22	51	30.1	69.9
Démence organique .	13	4	9	30.7	69.3
„ sénile	5	3	2	60	40
„ précoce	19	5	14	26.3	73.7
Epilepsie	31	5	26	16.1	83.9
Démence vésanique .	9	0	9	0	100.0

These results are surprising in respect to the number of positive reactions obtained. We are unable to state whether the positive reaction was obtained more than once in these cases. As regards idiots, the material collected by Dean is probably as extensive as any. He examined 330 idiots in the Wilhelmstift Asylum for idiots at Potsdam, and obtained a positive reaction in only 15.4 *per cent.*, which is much less than the percentage of the French authors cited above. Only thirteen of the total number showed evidence of congenital syphilis, so that he doubts whether there is any causal connection between syphilis and idiocy. These results appeared last year.

Ensor, in a paper also published last year, finds that of 262 insane male patients only 22 *per cent.* gave a positive reaction. It does not appear in the review of this work from which we quote whether any of these were general paralytics ; however, in twenty-seven such cases Ensor's positive results reached 96 *per cent.*, in which fluid is not stated.

Scott-Williamson obtained negative results in the cerebro-spinal fluid in all of twenty-two cases of insanity other than general paralysis.

v. Kaffka obtained uniformly negative results in eight cases of idiocy examined by him, and states that like results are recorded by "the other writers."

Muirhead records five cases of imbecility with negative results in all.

In epilepsy, *Hubner* failed to get a positive result out in any of nine cases.

Eichelberg states that the reaction may be positive in epilepsy, but no figures are given.

Twenty epileptics were examined by *Boas and Neve*, who found the results negative in all.

Marie obtained a negative reaction in all of fourteen cases of dementia præcox and in ten of epilepsy.

Morton obtained the like in the cerebro-spinal fluid of all of thirty cases of epilepsy and dementia præcox.

Muirhead confirms this in nine cases of epilepsy examined. This observer examined in all seventy-seven cases of psychoses other than paresis, and found the reaction negative in the serum and cerebro-spinal fluid of all, with the exception of one case in which there was tubercle and Addison's disease, which gave a partial reaction with these fluids.

Baccelli got a negative reaction in all of thirteen cases of chronic alcoholic states with symptoms simulating general paralysis, in four out of five cases of organic and senile dementia, and in four out of six cases of dementia præcox (the two exceptions had had syphilis).

The following statements concerning the Nonne-Apelt reaction are reproduced for comparison with our results.

Marinesco.—The reaction has not the specificity of that of Wassermann, as he has found it in other affections of the cerebro-spinal axis, having no connection with syphilis.

Eichelberg.—The reaction is positive in 100 *per cent.* of cases of tabes and paralysis, and in rather less degree in lues cerebro-spinalis. It occurs also in cerebral and spinal tumours and in multiple sclerosis. It is the most reliable test after Wassermann's.

Fröderstrom and Wigert obtained positive results in 100 *per cent.* (thirteen cases).

TABLE I.—Cases of General Paralysis.

No. of case	Age	Sex	Duration of disease at date of examination	Blood-serum hæmolysis, + or o.	Cerebro-spinal fluid hæmolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
C. M—	48	M.	7-8 yrs.	o	+	o	Reaction negative twice in last year of life; positive just before death.
G. S—	39	M.	1 yr. 8 mos.	o	+	+	Reaction negative 6 months earlier, positive 2 days before death.
E. B—	38	F.	3 yrs.	o	o	+	Reaction positive in blood 7 times in last 14 mos.; positive in C.S.F. only at close of year.
G. H—	55	M.	1 yr.	Retardation	—	—	—
F. O'S—	28	F.	3 yrs.	o	+	+	Reaction positive in blood 4 times in 14 mos.; Nonne-Apelt at first negative, positive 1 year later; patient much worse.
J. H—	44	M.	10-12 mos.	o	o	+	Reaction negative in blood 6 mos. later and just before death.
J. R. M—	40	M.	2 yrs. 9 mos.	o	+	+	—
R. D—	40	M.	1 yr. 10 mos.	+	+	Trace	—
J. C. L—	42	M.	1 yr.	o	+	—	—
W. G—	34	M.	4 yrs.	o	+	+	—
A. E. P—	35	M.	1 yr. 10 mos.	o	Retardation	o	—
J. I—	43	M.	1-2 yrs.	o	—	—	—
F. S—	46	F.	1 yr.	Retardation	—	—	—
R. C—	35	F.	10 mos.	+	+	+	—
M. O—	49	M.	2 yrs.	o	+	+	—
A. B—	54	F.	1 yr.	o	—	—	—
C. H. B—	37	M.	1 yr. 4 mos.	o	o	Trace	—
S. W. D—	34	M.	3 yrs. 8 mos.	o	o	+	3 times positive in blood and twice negative in year; no appreciable clinical change.
W. J. M—	56	M.	1 yr. 3 mos.	o	—	—	Reaction at first retarded, 2½ and 3 mos. later positive (twice); patient then much worse.
J. W. W—	42	M.	Several mos.	o	o	—	—
W. W—	44	M.	2 yrs.	+	+	+	—
D. S—	44	M.	6 yrs. 4 mos.	o	o	o	Blood-reaction positive and negative, interval 2 mos. clinically no change; blood-reaction positive 6 mos. later, worse clinically.
McC—							
E. J—	43	M.	4 yrs. 6 mos.	+	o	o	Reaction negative in blood later, more marked remission.
W. A. T—	43	M.	Over 2 yrs.	o	+	o	

	25	35	M.	2 yrs. 6 mos.	Retardation	0	+	
H. J. W—	25	35	M.	At least 3 yrs.	0	+	+	Reaction negative in blood 2 mos. later, though state rather worse.
R. J. G—	26	41	M.	Unknown 13 mos.	0	—	—	First retarded, in blood positive 7 mos. later, patient much worse.
G. J—	27	43	M.	At least 8 mos.	0	0	+	Reaction negative in blood a few weeks later, remission more marked; reaction positive in blood at termination of remission.
E. T—	28	51	M.	1 yr. 6 mos.	0	0	+	Reaction negative and positive in blood and C.S.F. within 5 mos.; no clinical change.
A. J. H. W—	29	43	M.	Retardation	0	0	+	Reaction negative in blood and C.S.F. 6 mos. later; physically much better. Reaction positive in blood, negative in C.S.F. 5 weeks after last time; in same state.
A. H—	30	40	M.	Unknown, several mos.	0	0	+	Reaction retarded in blood 3 mos. earlier, negative 7 mos. earlier, positive soon after epileptiform seizures.
W. J. K—	31	37	M.	11 mos.	+	—	—	Reaction positive with blood, 30 : 6 : 10; 23 : 1 : 11; negative with same, 20 : 3 : 11; no clinical change.
E. M—	32	40	F.	8 mos.	0	0	+	Reaction negative in blood 7 weeks later and 4 days before death.
H. S—	33	53	M.	7 mos.	0	0	+	Reaction retarded 3 weeks earlier, in same clinical state.
W. T. M—	34	43	M.	1 yr. 5 mos.	0	0	+	Discharged, probably in remission of G.P.I., 2 mos. after serum tested.
M. P—	35	52	F.	6 mos.	0	0	+	
J. G—	36	46	M.	2 yrs. 4 mos.	0	0	+	
J. H—	37	36	M.	1 yr.	0	0	+	
H. S—	38	47	M.	Unknown, some mos.	0	0	+	
E. P—	39	49	M.	1 yr. 1 mo.	0	0	+	
A. J. S—	40	35	M.	At least 3 mos.	+	+	+	
R. W. T—	41	49	M.	2 yrs.	+	+	+	
H. P—	42	53	M.	At least 4 mos.	0	0	+	
T. J—	43	43	M.	2 mos.	0	0	+	
J. B—	44	38	M.	2 yrs. 5 mos.	0	0	+	
E. M—	45	24	F.	15 mos.	0	0	+	
A. J. H—	46	39	M.	4 mos.	0	0	+	
M. C—	47	36	F.	12 mos.	0	0	+	
M. J. M—	48	35	F.	12 mos. at least	+	+	+	
S. J. K—	49	41	M.		+	+	+	

Eichelberg and Pfortner find that the Nonne-Apelt is the most delicate of the (presumably) proteid-precipitation methods.

These authors are quoted by Apelt as obtaining a positive reaction in all of twelve general paralytics, and a negative one in all of 118 cases of other psychoses.

Bruckner extols the excellence of the method, which is simple, and more reliable than that of the Wassermann and than the cytological method. As a result of several hundred tests he is able to say that the reaction with the Nonne-Apelt method only occurs in destructive processes of the central nervous system, and almost always in general paralysis and lues cerebri.

Billström found the reaction positive in 100 *per cent.* of his cases, and notes especially that it occurs in the early phases of the disease as well as in the later ones ; also that it occurs comparatively frequently in cases other than general paralysis (12.5 *per cent.* of such), but his material of "other" cases was limited to eight.

Szécsis finds the reaction positive in 100 *per cent.* of cases (number not stated in the reference quoted), negative in healthy persons.

Wassermeyer and Bering found the reaction always positive.

Assmann found the same. The reaction is often present in cerebro-spinal lues ; never in pure functional psychoses.

Our results are here given in tabular form, with summary of each table, historical notes to Tables I and II, and remarks and notes with the various tables.

Summary of Table I.

Total cases	49.
Sera tested : 49, of which—	
37 were positive	= 75.50 <i>per cent.</i>
3 gave retardation	= 6.12 "
9 were negative	= 18.36 "
<hr/>	<hr/>
49	99.98 "
 Cerebro-spinal fluid tested : 41, of which—	
17 were positive	= 41.46 <i>per cent.</i>
4 showed retardation	= 9.75 "
20 were negative	= 48.78 "
<hr/>	<hr/>
41	99.99 "

Nonne-Apelt test in 40, of which—

30 were positive	=	75	per cent.
3 gave trace	=	7.5	"
7 were negative	=	17.5	"
40		100	"

As appears later in this paper, 84 per cent. of the twenty-four positive and "retarded" reactions which were tested twice or oftener proved positive on re-examination.

The agreement of results of the *Nonne-Apelt* test with those of the Wassermann test in the serum is well shown, as also the divergence of the latter test in the cerebro-spinal fluid from both.

A study of the remarks and notes to Table I shows that in a considerable number of cases the reaction (Wassermann) varied at different periods of the case, in some instances without obvious clinical change.

Notes to Cases in Table I.

No. of case.			
1.	Reaction negative with serum	. 15 : 11 : 09.	
	" " with C.S.F.	. 29 : 11 : 09.	
	<i>Nonne-Apelt</i> negative . . .	. 29 : 11 : 09.	
	Reaction negative with serum	. 13 : 5 : 10.	Not much change in patient's state.
	" positive "	. 8 : 11 : 10.	Shortly before <i>exitus</i> .
2.	Reaction negative with serum	. 8 : 11 : 09.	
	" " with C.S.F.	. 1 : 11 : 09.	
	<i>Nonne-Apelt</i> negative . . .	. 1 : 11 : 09.	
	Reaction positive with serum	. 13 : 5 : 10.	Two days before death.
3.	Reaction negative with C.S.F.	. 22 : 11 : 09.	
	" positive with blood	. 8 : 11 : 09.	
	" " "	. 7 : 3 : 10.	
	" " "	. 21 : 3 : 10.	
	" " "	. 30 : 6 : 10.	Worse clinically.
	" " "	. 28 : 11 : 10.	Worse, helpless, bed-ridden.
	" " "	. 12 : 12 : 10.	As on last occasion.
	" " "	. 23 : 1 : 11.	" "
	" " "	. 20 : 3 : 11.	" "
	" " with C.S.F.	. 28 : 11 : 10.	
	<i>Nonne-Apelt</i> negative . . .	. 28 : 11 : 10.	
5.	Reaction negative with C.S.F.	. 22 : 11 : 09.	
	" " " "	. 12 : 12 : 10.	
	<i>Nonne-Apelt</i> negative . . .	. 22 : 11 : 09.	
	" positive . . .	. 12 : 12 : 10.	
	Reaction positive with blood	. 15 : 11 : 09.	
	" " "	. 13 : 5 : 10.	Worse clinically.
	" " "	. 12 : 12 : 10.	Bedridden, demented.
	" " "	. 23 : 1 : 11.	As on last occasion.
	" " "	. 20 : 3 : 11.	" "
6.	Reaction positive with blood	. 25 : 10 : 09.	
	" negative "	. 13 : 5 : 10.	Just before death.
7.	Reaction negative with C.S.F.	. 8 : 11 : 09.	
	" positive with blood	. 25 : 10 : 09.	
	" " "	. 13 : 5 : 10.	Much the same clinically.
	" " "	. 8 : 11 : 10.	" "
	" " "	. 12 : 12 : 10.	" "

No. of case.			
8.	Reaction negative with C.S.F.	. 22 : 11 : 09.	
	" " with blood	. 25 : 10 : 09.	
9.	Reaction negative with C.S.F.	. 22 : 11 : 09.	
	" positive with blood	. 25 : 10 : 09.	
10.	Reaction negative with C.S.F.	. 1 : 11 : 09.	
	Nonne-Apelt negative . . .	. 1 : 11 : 09.	
	Reaction positive with blood	. 25 : 10 : 09.	
11.	Retardation C.S.F. . . .	. 22 : 11 : 09.	
	Nonne-Apelt negative . . .	. 22 : 11 : 09.	
	Reaction positive with blood	. 25 : 10 : 09.	
12.	Reaction positive with blood	. 25 : 10 : 09.	
13.	Blood-serum tested . . .	. 15 : 11 : 09.	
14.	Reaction negative with C.S.F.	. 29 : 11 : 09.	
	Nonne-Apelt positive . . .	. 29 : 11 : 09.	
	Reaction negative with blood	. 15 : 11 : 09.	
15.	Reaction negative with C.S.F.	. 22 : 11 : 09.	
	Nonne-Apelt positive . . .	. 22 : 11 : 09.	
	Reaction positive with blood	. 15 : 11 : 09.	
	" " "	. 7 : 3 : 10.	Much the same clinically.
16.	Reaction positive with blood	. 6 : 12 : 09.	
	" " "	. 7 : 3 : 10.	Same state clinically.
	" " "	. 13 : 5 : 10.	Worse.
17.	Reaction positive with blood	. 6 : 12 : 09.	
	" " "	. 7 : 3 : 10.	Same state clinically.
	" " "	. 21 : 3 : 10.	" "
	" negative "	. 13 : 5 : 10.	" "
	" " "	. 28 : 11 : 10.	" "
	" positive with C.S.F.	. 28 : 11 : 10.	
	Nonne-Apelt trace . . .	. 28 : 11 : 10.	
18.	Retardation with blood . .	. 6 : 12 : 09.	
	Reaction positive with blood	. 14 : 2 : 10.	} State notably worse on these dates.
	" " "	. 28 : 2 : 10.	
	Nonne-Apelt positive . . .	. 14 : 2 : 10.	
	Reaction positive with C.S.F.	. 14 : 2 : 10.	Died 5 : 3 : 10.
20.	Reaction positive with blood	. 6 : 12 : 09.	
	" " "	. 7 : 3 : 10.	Much the same.
21.	Reaction negative with blood	. 28 : 2 : 10.	
	" " "	. 12 : 12 : 10.	} In more marked remission.
	" " with C.S.F.	. 28 : 2 : 10.	
	" " "	. 12 : 12 : 10.	
22.	Reaction negative with blood	. 13 : 5 : 10.	Second time. State much the same as when positive nine weeks before.
	" positive "	. 14 : 11 : 10.	Worse.
	" " with C.S.F.	. 14 : 11 : 10.	
23.	Reaction negative with blood	. 7 : 3 : 10.	
	" " "	. 21 : 3 : 10.	} Clinically much the same. (With 0.2 c.c. serum.)
	" " "	. 8 : 11 : 10.	
	" " "	. 28 : 11 : 10.	
	" positive with C.S.F.	. 28 : 11 : 10.	
24.	Reaction positive with blood	. 25 : 4 : 10.	
	" negative "	. 12 : 12 : 10.	Marked remission.
	" " with C.S.F.	. 20 : 6 : 10.	Two months later than serum; in progressive remission.
	Nonne-Apelt negative . . .	. 20 : 6 : 10.	

No. of case.			
25.	Retardation blood . . .	25 : 4 : 10.	
	Reaction negative with blood . . .	13 : 5 : 10.	
	" " " with C.S.F. . . .	20 : 6 : 10.	Somewhat worse.
	Nonne-Apelt positive . . .	20 : 6 : 10.	
26.	Retardation blood . . .	25 : 4 : 10.	
	Reaction positive with blood . . .	8 : 11 : 10.	Much worse.
	" " " negative with C.S.F. . . .	5 : 12 : 10.	Still worse.
	Nonne-Apelt positive . . .	5 : 12 : 10.	
27.	Reaction positive with blood . . .	25 : 4 : 10.	
28.	Retardation blood . . .	25 : 4 : 10.	
	Reaction negative with blood . . .	13 : 5 : 10.	Remission progressively more marked. 0.1 c.c. 1/10 c.c.
	" " " with C.S.F. . . .	28 : 11 : 10.	
	" " " positive with C.S.F. . . .	28 : 11 : 10.	
	Nonne-Apelt faint ring . . .	28 : 11 : 10.	
	Reaction positive in blood . . .	23 : 1 : 11.	
	Negative again . . .	20 : 3 : 11.	Just out of acute relapse.
	Reaction negative in C.S.F. . . .	23 : 1 : 11.	Patient again in remission.
	Nonne-Apelt positive . . .	23 : 1 : 11.	
29.	Reaction negative with blood . . .	20 : 6 : 10.	
	" " " positive . . .	14 : 11 : 10.	Clinically no obvious change.
	" " " with C.S.F. . . .	24 : 10 : 10.	
	" " " negative with C.S.F. . . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
	" " " . . .	25 : 10 : 10.	
30.	Reaction positive with blood . . .	20 : 6 : 10.	
	" " " negative " . . .	12 : 12 : 10.	In much better condition physically; stronger.
	" " " retarded with C.S.F. . . .	20 : 6 : 10.	
	Nonne-Apelt negative . . .	20 : 6 : 10.	
	Reaction negative with C.S.F. . . .	12 : 12 : 10.	
	Nonne-Apelt positive . . .	12 : 12 : 10.	
	Reaction positive with blood . . .	23 : 1 : 11.	In same state as on 12 : 12 : 10.
	" " " negative with C.S.F. . . .	23 : 1 : 11.	
	Nonne-Apelt positive . . .	23 : 1 : 11.	
31.	Reaction positive with blood . . .	20 : 6 : 10.	
	" " " with C.S.F. . . .	20 : 6 : 10.	
	Nonne-Apelt positive . . .	20 : 6 : 10.	
32.	Reaction negative with blood . . .	30 : 6 : 10.	
	" " " " . . .	12 : 12 : 10.	Marked remission.
33.	Reaction positive with blood . . .	30 : 6 : 10.	
	" " " " . . .	28 : 11 : 10.	More dementia; physically the same.
	Reaction negative with C.S.F. . . .	30 : 6 : 10.	
	Nonne-Apelt negative . . .	30 : 6 : 10.	
	Reaction positive with C.S.F. . . .	28 : 11 : 10.	
	Nonne-Apelt trace . . .	28 : 11 : 10.	
34.	Reaction negative with blood . . .	30 : 6 : 10.	
	Retardation with blood . . .	24 : 10 : 10.	
	" " " " . . .	12 : 12 : 10.	
	Reaction positive with C.S.F. . . .	24 : 10 : 10.	Demented considerably, but physically in well-marked remission.
	Nonne-Apelt negative . . .	24 : 10 : 10.	
	Reaction negative with C.S.F. . . .	12 : 12 : 10.	
	Nonne-Apelt positive . . .	12 : 12 : 10.	

No. of case.			
	Reaction positive in blood . . .	23 : 1 : 11.	Had epileptiform seizures a month ago; now up again.
	Slight retardation only . . .	20 : 3 : 11.	Patient again in remission.
	Reaction negative in C.S.F. . .	23 : 1 : 11.	
	Nonne-Apelt negative . . .	23 : 1 : 11.	
35.	Reaction positive with blood . . .	30 : 6 : 10.	
	" " " . . .	23 : 1 : 11.	
	" negative " . . .	20 : 3 : 11.	No clinical change.
	" positive with C.S.F. . .	24 : 10 : 10.	
	Nonne-Apelt positive . . .	24 : 10 : 10.	
36.	Reaction positive with blood . . .	24 : 10 : 10.	Same state.
	" " " . . .	23 : 1 : 11.	"
	" " with C.S.F. . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
37.	Retardation with blood . . .	24 : 10 : 10.	With $\frac{1}{10}$ c.c.
	Reaction positive with blood . . .	24 : 10 : 10.	With $\frac{2}{10}$.
	" negative " . . .	14 : 11 : 10.	Much the same.
	" retarded with C.S.F. . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
38.	Reaction positive with blood . . .	24 : 10 : 10.	
	" " " . . .	21 : 11 : 10.	Much the same.
	" negative with C.S.F. . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
39.	Reaction positive with blood . . .	24 : 10 : 10.	
	" negative " . . .	12 : 12 : 10.	Unconscious; died in four days.
	" retarded in C.F.S. . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
40.	Reaction negative with blood . . .	14 : 11 : 10.	
	" " " . . .	12 : 12 : 10.	
	" " with C.S.F. . .	14 : 11 : 10.	
	Nonne-Apelt positive . . .	14 : 11 : 10.	
	" " " . . .	12 : 12 : 10.	
	Reaction negative with C.S.F. . .	12 : 12 : 10.	
41.	Retardation with blood . . .	21 : 11 : 10.	
	Reaction positive with blood . . .	12 : 12 : 10.	In same state.
	" " with C.S.F. . .	5 : 12 : 10.	
	Nonne-Apelt positive . . .	5 : 12 : 10.	
42.	Reaction negative with blood . . .	5 : 12 : 10.	Same mentally ; better physically.
	" " " . . .	23 : 1 : 11.	
	" " with C.S.F. . .	5 : 12 : 10.	
	Nonne-Apelt positive . . .	5 : 12 : 10.	
43.	Reaction positive with blood . . .	12 : 12 : 10.	
	" negative with C.S.F. . .	12 : 12 : 10.	
	Nonne-Apelt negative . . .	12 : 12 : 10.	
44.	Reaction positive with blood . . .	22 : 11 : 09.	
	" negative with C.S.F. . .	22 : 11 : 09.	
	Nonne-Apelt positive . . .	22 : 11 : 09.	
45.	Reaction positive with blood . . .	13 : 12 : 09.	
	" " " . . .	10 : 11 : 10.	Much worse mentally and physically.
47.	Reaction positive with blood . . .	29 : 11 : 09.	
	" " " . . .	21 : 3 : 10.	Same state clinically.
	" " " . . .	5 : 12 : 10.	Great physical reduction.

No. of case.			
Reaction negative with C.S.F.	7	3	10.
" " " "	5	12	10.
Nonne-Apelt negative "	7	3	10.
" " " "	5	12	10.
Reaction positive with blood	21	3	10.

And with amboceptor 1 in 20 and 1 in 50; retarded with 1 in 100.

Historical Notes to Cases in Table I.

CASE 1.—Unusual duration (seven to eight years). Locomotor ataxy with increasing dementia. Sense of well-being +. Pin-point pupils, fixed to light. Speech blurred. Died November 5th, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane; the pial adhesions, however, quite recent, and leptomeninges thin. Kidneys much diseased (pyelonephrosis), otherwise might have lived some time. Appeared to be in third stage clinically, but *post-mortem* in second stage.

CASE 2.—In late second stage. Exaltation, dementia, ataxy, much wasting. Died May 14th, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 3.—In second stage. Prostitute before marriage. Exaltation, well-being +; dementia progressive. Inco-ordination facial muscles, speech blurred.

CASE 4.—In third stage. Fumbling, resistive, expressionless; dirty, demented; facial inco-ordination, blurred speech, feeble gait, deglutition impaired. Died January 2nd, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 5.—In late second stage. Some exaltation, much dementia. Ataxy, spinal symptoms being early in evidence. Facial inco-ordination, knee-jerks absent. Purulent vaginal discharge on admission. Husband states she has had syphilis.

CASE 6.—In second stage. Some dementia with well-being +. Physical symptoms at first more marked (and when examined): much tremor, including of tongue, speech much blurred, knee-jerks +; light reaction of pupils diminished. Died May 14th, 1909. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 7.—In second stage. At onset giving away money and valuables. Later self-satisfied, demented, unclean, mischievous. In partial remission when examined first, but not mind enough for work; tongue tremulous, knee-jerks absent. Died December 27th, 1910. *Post-mortem*.—Lesions of general paralysis of the insane, but not pronounced.

CASE 8.—In third stage. Grandiose delusions, well-being +, dementia marked, speech blurred, lingual and facial inco-ordination, knee-jerks +. Died December 26th, 1909. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 9.—In second stage. Exalted delusions, loss of facial expression. Died in another asylum. *Post-mortem* refused, but there also regarded—as well as in an intermediate, third, asylum—as clinically, certainly general paralysis of the insane.

CASE 10.—In third stage. Demented, unclean, much general inco-ordination, speech blurred, knee-jerks +. Died December 2nd, 1909. *Post-mortem*.—Lesions of general paralysis of the insane, but not pronounced; much brain-wasting.

CASE 11.—In third stage. Very feeble; much inco-ordination and speech defect. Demented. Died January 9th, 1910. *Post-mortem* refused.

CASE 12.—In third stage. Very demented. Speech much blurred, much general inco-ordination. Died November, 25th, 1909. *Post-mortem* refused.

CASE 13.—In third stage. Very demented. Facial inco-ordination, speech blurred, knee-jerks +. Died November 27th, 1909. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 14.—In third stage. Demented, very helpless. Symptoms at one time suggestive of cerebral tumour. Died December 9th, 1909. *Post-mortem*.—Lesions

of general paralysis of the insane slight; granularity of ependyma of fourth and lateral ventricles—principal.

CASE 15.—In third stage. Demented, self-satisfied. Tongue inco-ordination, much general wasting. Died March 26th, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 16.—In third stage. Demented, unclean. Died June 26th, 1910. *Post-mortem*.—Typical lesion of general paralysis of the insane.

CASE 17.—In second stage. Demented, unclean. General inco-ordination, knee-jerks absent.

CASE 18.—In third stage. Transferred from another asylum. Dementia, but able to work. Not first considered a general paralytic. Probably in a remission. Some delusions of exaltation. Increasing dementia—physical signs of general paralysis of the insane about date of first blood-examination. Died March 5th, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 19.—In the late second stage. Mania with exalted delusions, extreme restlessness. Gait affected, but examination very difficult. Speech blurred, pupils pin-point, react very little. Either general paralysis of the insane or metasyphilitic state. Died March 29th, 1910. *Post-mortem* refused.

CASE 20.—In third stage. Demented type and much physical reduction. Died March 22nd, 1910. *Post-mortem*.—Lesions of general paralysis of the insane fairly well marked.

CASE 21.—In second stage and in early stage of remission. Demented, well-being +, lingual and facial tremors, blurred speech, knee-jerks +.

CASE 22.—In second stage. Exalted delusions, mischievous, rubbish-collector. Inco-ordination of facial muscles. Fractured his right radius. Not recognised as general paralysis at first. Later (after blood-examination) symptoms obvious. Epileptiform seizures. Died January 17th, 1911. *Post-mortem*.—Typical lesions.

CASE 23.—In late second stage. Marked inco-ordination of gait and speech, and dementia. Physical symptoms more obvious than mental. Later helpless, bed-ridden, more demented. Died January 8th, 1911. *Post-mortem*.—Atrophy of brain, much general softening; leptomeninges thickened and stripped in sheet; excess of subarachnoid fluid. Spinal cord softened throughout, like brain; no systemic disease. (Lesions not characteristic of paralytic dementia.)

CASE 24.—In second stage and early stage of remission. Some dementia and well-being +. Some tremor of tongue and knee-jerks +. Still in remission and working when examined December 12th, 1910. Wife had had five miscarriages.

CASE 25.—In third stage. Demented, unclean, feeble, blurred speech, much general tremor. Died September 8th, 1911. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 26.—In later part of second stage and relapse from prolonged remission, during which he was sent home. Ataxy, pin-point pupils; a spinal case; also dementia. First examined at termination of remission. Some months after (November 19th, 1910) a seizure. Became bed-ridden. Died March 12th, 1911. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 27.—Probably in third stage. Very demented, unclean, tongue-tremor, knee-jerks absent. Died May 11th, 1910. *Post-mortem*.—Typical lesions of general paralysis of the insane.

CASE 28.—In second stage. On admission much exalted, articulation defective, right pupil much dilated. Began to improve quickly. Remission established, so that he became useful ward-worker. (In this state when blood examined.) About middle December, 1910, became restless, incoherent, speech blurred, pupils fixed, right very dilated, knee-jerks +, gait shaky. In January, 1911, complete relapse, very troublesome. Had just come out of the acute condition to previous state when examined January 23rd, 1911.

CASE 29.—In second stage. Demented type with much loss of memory; tongue-tremor; mischievous, interfering. Never confined to bed—strong physically.

CASE 30.—In second stage (late), or early third. Very demented and very feeble physically. Facial and lingual inco-ordination, blurred speech, knee-jerks +. Aortic regurgitation.

CASE 31.—In second stage. Dementia, well-being +. Facial inco-ordination,

pupils unequal, speech blurred; physically much reduced. Transferred to another asylum. Report received seven months after serum test from the asylum saying he was a general paralytic, and recently had a "seizure."

CASE 32.—In second stage, prior to a remission. Exaltation, restlessness, destructiveness, physical reduction. Later in marked remission, and working.

CASE 33.—In second stage. Marked dementia with physical reduction.

CASE 34.—In late second stage. Dementia, with some exaltation still; disorientated, fidgety. About six weeks after first examination of blood remission obvious, almost wholly in physical state. December 14th, 1910 (some months later), epileptiform seizures, which slowly passed, left no paralysis. Patient confined to bed, but soon up and about again, and physically as before. (This man, a private case, was at Aachen for syphilis, and being treated there a few weeks before admission here most probably had general paralysis of the insane at the time, from history given.)

CASE 35.—In second stage. Marked dementia, with physical debility; feeble and shaky gait, inco-ordination of facial and lingual muscles.

CASE 36.—In second stage. Exalted before admission. On admission, dementia, optimism, facial and lingual inco-ordination, speech blurred, knee-jerks +.

CASE 37.—In late second stage. Marked dementia with well-being +. Marked physical reduction. Facial expression blank, pupils irregular, speech blurred, lingual inco-ordination, knee-jerks +.

CASE 38.—In early third stage. Demented, speech blurred, unclean habits, feeble gait, knee-jerks +.

CASE 39.—In second stage. In general hospital before admission, and there first thought to have bulbar paralysis. Demented, repeats himself, well-being +. Gait affected, and speech; facial inco-ordination, knee-jerks +. Died December 15th, 1910, of bronchitis and cardio-vascular degeneration. Dura adherent, pia thickened, opaque, congested. Brain soft, fourth ventricle slightly granular; basal vessels atheromatous. (General paralysis; lesions not typical.)

CASE 40.—In third stage. Demented and exalted. Speech blurred, facial inco-ordination, pupils unequal, rigid to light, knee-jerks absent, cannot walk without help; appetite ravenous.

CASE 41.—In second stage. Considerable dementia, but can give some account of himself. Pupils fixed to light, blind; has white discs (optic atrophy). Some degree of lateral nystagmus, knee-jerks +. Says he had syphilis some twenty years ago, describing also a rash. Wife has had two miscarriages. Is too feeble to walk.

CASE 42.—In late second stage. Dementia with some exaltation still, well-being +. Several convulsive seizures quite recently. Tremors (inco-ordination) of different parts, pupils fixed to light, knee-jerks +. Died February 2nd, 1911; convulsive seizures just before death. *Post-mortem*.—Typical lesions.

CASE 43.—In second stage. Demented, but not absolutely. Flabby, pale. Inco-ordination facial muscles, shaky, blurred speech, knee-jerks +.

CASE 44.—In first stage. Wife had "two or three" still-born children. Patient a publican, and has had delirium tremens and has drunk heavily in times past. Changed in character; slurring of speech and absent-mindedness noticed. Two fits, a few weeks and a few days respectively before admission; "unconscious for three days" after one. On admission, general paralysis of the insane thought probable, but signs not pronounced. Irritability, some excess of well-being, memory bad, speech rather slow and articulation impaired. Slight tongue-tremor, knee-jerks diminished, pupils do not react to light or accommodation. Delusions of suspicion. A good deal improved in all respects when examined two and a half months after admission. Discharged well two months after serum tested, having been working in meantime. Considered either well from alcoholic insanity or in remission of general paralysis of the insane. Letter received from wife one year later stating patient far from well mentally; memory and comprehension bad, "very quiet," no sense of responsibility, never goes out of house, does nothing to support family, talks much to himself.

CASE 45.—Duration, two year five months. Some degree of congenital defect on admission, diagnosed as melancholia upon this. Later (when serum tested) thought to be epileptic; fits severe and regular, but several months later the marked wasting, teeth-grinding, fixation to light of pupils, and nature of seizures led to

diagnosis of general paralysis of the insane. Died November 7th, 1910. *Post-mortem*.—Typical lesions.

CASE 46.—Duration fifteen months. On admission and when serum examined, in state of melancholia with some dementia. Facies suggestive of alcohol and admitted excess in drink. Facial and labial tremor. Eleven months after test had a minor seizure with pyrexia, tremors, articulatory and pupillary changes; ? general paralysis of the insane. Became dirty, and had slight seizure two months later. Died in Notts Boro' Asylum one year and seven months after serum test. Diagnosis there, general paralysis of the insane, and confirmed by autopsy.

CASE 47.—Duration about four months. Blood tested on examination, she regarded as an epileptic. Demented, destructive, dirty. Suspicion of general paralysis of the insane one year after serum tested. Wasting and debility marked, knee-jerks absent, pupils fixed to light, speech indistinct, fatuous expression. Fits of minor kind, in series. One month later hæmatoma auris; a few days later left-sided convulsions. Died February 26th, 1911. *Post-mortem*.—Typical lesions on right side, a false membrane.

CASE 48.—In second stage. Demented type, well-being +. Fatuous. Pupils eccentric, reactions impaired; tremors, difficulty in swallowing, speech and gait affected, knee-jerks +. Expression largely wanting. Four miscarriages.

CASE 49.—In second stage. Demented type, well-being +. Memory defective; inco-ordination of facial and labial movements, speech blurred, pupils excentric and "hippus," and impaired movement to light. Knee-jerks +. Wife, one miscarriage.

TABLE II.—*Cases in which the Diagnosis of General Paralysis was Dubious.*

	No. of case.	Age.	Sex.	Duration of disorder.	Blood-serum hæmoly-sis, + or o.	Cerebro-spinal fluid hæmoly-sis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
W. F—	50	40	M.	5 mos.	+	+	+	—
A. L—	51	40	M.	11 mos.	+	+	o	—
J. S—	52	45	M.	Unknown, at least 2 mos.	o	+	o	Reaction negative in blood 1 year later; same state.
H. S—	53	47	M.	16 days	+	+	o	—
E. G—	54	56	F.	9 mos. ("strange some yrs.")	o	+	+	C.s.f. tested nearly 5 mos. after blood, when patient much better
M. T. H—	55	43	F.	8 mos.	+	+	—	—
A. M—	56	47	M.	7 mos.	+	+	—	—
J. E—	57	48	M.	2 mos.	+	o	Faint trace	—
F. J. W—	58	37	M.	4 mos.	+	+	—	—
W. R—	59	32	M.	1 mo.	+	—	—	—
D. L—	60	54	M.	4 mos.	+	o	o	Reaction positive with C.S.F. 28:11:10; reaction negative with C.S.F. 23:1:11.
E. P—	61	41	F.	11 yrs.	—	+	—	—

Notes to Cases in Table II.

No. of case.

51. Reaction negative with blood . 20 : 6 : 10. With 0.1 c.c., 0.2 c.c., 0.3 c.c. amboceptor.

No. of case.				
	Reaction negative with C.S.F.	. 20 : 6 : 10.		
	Nonne-Apelt negative . . .	. 20 : 6 : 10.		
52.	Reaction positive with blood	. 14 : 2 : 10.		
	„ negative „	. 23 : 1 : 11.	In same state stupor; if anything, better clinically.	
	„ „ with C.S.F.	. 21 : 2 : 10.		
	„ „ „	. 23 : 1 : 11.		
	Nonne-Apelt negative . . .	. 14 : 2 : 10.		
	„ „ . . .	. 23 : 1 : 11.		
53.	Blood . . . . .	. 8 : 11 : 09.		
	C.S.F. . . . .	. 22 : 11 : 09.		
54.	Reaction positive with blood	. 30 : 6 : 10.		
	„ negative with C.S.F.	. 14 : 11 : 10.	In much better physical state; well-nourished, and up and about; mental state also improved, though she is not well.	
	Nonne-Apelt negative . . .	. 14 : 11 : 10.		
56.	C.S.F. + N.A. on standing, not + in 3' time-limits.			
60.	Reaction negative with blood	. 28 : 11 : 10.		
	„ „ positive with „ C.S.F.	. 23 : 1 : 11.	Same state.	
	„ „ negative „	. 28 : 11 : 10.		
	„ „ negative „	. 23 : 1 : 11.		
	Nonne-Apelt negative . . .	. 28 : 11 : 10.		
	„ „ . . .	. 23 : 1 : 11.		

Summary of Table II.

In this table as originally compiled fifteen cases figured. Three of these were subsequently transferred to Table I (general paralysis), they having been proved by further clinical experience and by autopsy to be really general paralytics. It is significant that in two of them suspicion as to the real nature of the malady was aroused first by the positive reaction of the serum. Up to the date of the test these cases were looked upon as cases of ordinary epilepsy. It is to be noted that the reaction was positive in the blood in these two cases respectively twice and four times. In the third case, the only Wassermann test it was feasible to make proved negative; the patient was removed to another asylum and died there.

Total cases	12.
Sera tested : 11, of which—	
2 were positive = 18'18 per cent.	
9 were negative = 81'81 „	
11	99'99 „
Cerebro-spinal fluid tested : 11, of which—	
2 were positive = 18'18 per cent.	
9 were negative = 81'81 „	
11	99'99 „
Nonne-Apelt in 7, of which—	
2 were positive = 28'57 per cent.	
1 showed trace = 14'28 „	
4 were negative = 57'14 „	
7	99'99 „

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As regards the two cases in which the serum was positive (cerebro-spinal fluid negative, Nonne-Apelt ditto), in one (J. S—) the reaction was negative in the serum one year later (cerebro-spinal fluid negative, Nonne-Apelt ditto). Later diagnosis, stupor, not general paralysis. In the second (*e.g.*, cerebro-spinal fluid negative, Nonne-Apelt positive) the case was later diagnosed as probably a parasyphilitic condition, not general paralysis. The age was *prima facie* against general paralysis.

The second Wassermann test reduced the percentage of positives in serum to 9.09.

In the two cases in which the cerebro-spinal fluid was positive, in one it was negative on the second occasion, two months later; in the other the patient left well, before a second test could be applied. In these two the serum was negative, and Nonne-Apelt gave a faint trace in one, was negative in the other.

The second Wassermann test reduced the percentage of positives in cerebro-spinal fluid to 9.09.

In the two cases in which the Nonne-Apelt was positive, in one the blood and cerebro-spinal fluid were negative, in the other the blood was positive. The faint trace with Nonne-Apelt went with positive reaction in the cerebro-spinal fluid. A negative Nonne-Apelt went with negative reaction in the cerebro-spinal fluid in all cases (counting D. L— as negative from result of second test).

As regards the nine cases in which the serum was negative.

W. F—: Case of head-injury; proved not to be general paralysis. (See notes to Table II.)

A. L—: Proved a case of bulbar paralysis. (See notes.)

H. S—: Fracture of skull: proved not to be general paralysis. (See notes.)

M. T. H—: Proved to be alcoholism. (See notes.)

A. M—: Proved not to be general paralysis, but melancholia with physical deterioration. (See notes.)

J. E—: Probably alcoholic. (See notes.)

F. J. W—: Head injury; dementia with delusions; not general paralysis. (See notes.)

W. R—: Proved not to be general paralysis, but adolescent dementia. (See notes.)

D. L—: Proved not to be general paralysis, but epilepsy. (See notes.)

The salient fact brought out by this table (still further emphasised by the opening remarks) is that the subsequent clinical experience of these doubtful cases showed the Wassermann test to possess a high degree of diagnostic value in blood and cerebro-spinal fluid.

The Nonne-Apelt test was applied in a small number of cases only, but in these did not prove of a high degree of value.

Historical Notes to Cases in Table II.

CASE 50.—The mental state followed upon a severe head-injury five to six months prior to admission. For this he was treated in Cardiff Infirmary. Certified as insane. On admission, and at date of serum-test, showed some dementia, with emotional instability and insane suspicion and dread. Physically, tremor of facial and lingual muscles, knee-jerks +. The state suggested general paralysis of the insane. Recovered in two months. Letter received about him eight months later, saying he appeared to be well and was following his occupation.

CASE 51.—Eleven months' illness. Hebetude; bursts out crying when addressed. Articulation much impaired, loss of expression; the symptoms point rather to bulbar paralysis; general paralysis of the insane not excluded. Six months after serum-test diagnosis of general paralysis of the insane excluded.

CASE 52.—At least two months' duration (actual duration unknown). Certified as "melancholia with stupor" on admission a month before serum-test. In this state when examined. No facial expression; does not move nor speak, standing in one place. Ten months later same state. Pupils react normally and are circular. Tongue steady. Some inco-ordination of facial muscles. Knee-jerks rather +.

CASE 53.—Admitted to hospital sixteen days prior to reception at the mental hospital for fractured skull. Not fully conscious up to a few hours of reception

at latter. Unmanageable in former institution. On reception garrulous, restless, incoherent, interfering. Later, full of plans and lavish in promises; childish behaviour. Knee- and elbow-jerks +, some tongue tremor. The clinical picture suspicious of general paralysis of the insane. Discharged well in four months. Subsequent history unknown. Serum tested five weeks after injury.

CASE 54.—Nine months' duration ("‘strange’ some years.") Before admission extravagant, buying useless things in quantity. On admission, some dementia with well-being +, some inco-ordinate facial movements. In this state when examined. Later (some months) no physical signs of general paralysis of the insane. Cannot be employed. Hoards rubbish and hides things. *Bien être*. Well-nourished. Age against general paralysis of the insane. Metasyphilis of central nervous system?

CASE 55.—Eight months' duration. History of stout-drinking in quantity; facies somewhat that of alcohol. Dementia with delusions of suspicion; facial tremor. Thus when serum examined. Dementia gradually passed away; aural hallucinations and delusions of suspicion remained. No physical signs of general paralysis of the insane. Useful ward-worker. General paralysis of the insane excluded several months after serum-test.

CASE 56.—Duration seven months. When received, and at date of serum-test demented; destructive, restless, "fumbling," wandering about; had to be fed and washed; feeble physically, knee-jerks +. General paralysis of the insane. At a later date no physical evidence of general paralysis of the insane, and diagnosis melancholia (became depressed, with ideas of unworthiness).

CASE 57.—Duration about two months. Some dementia with delusions of suspicion. Memory impaired for recent events. Thus when serum tested. Thought to be probably a case of alcoholism, but general paralysis of the insane? Got quickly well and discharged in a few weeks.

CASE 58.—Four months' duration. A short time (not more than a few months) before admission received a head-injury, not very severe, but followed by a mental change. On reception, and when serum tested, some dementia, shown by apathy, loss of energy, confusion. Slow reaction, etc. Likewise delusions of suspicion. Was discharged well in a few months. Further history unknown.

CASE 59.—About one month's duration. Dementia with much physical reduction at date serum tested. Later (a few months), possibility of general paralysis of the insane excluded; symptoms all pointed to precocious dementia.

CASE 60.—Duration four months. "Severe head-injury" at colliery, up to which said to have been normal (but fits in infancy, and according to colliery officials he was found at his work in a fit: no trauma unless fall in fit). On admission confused, hallucinated and restless. Violent epileptiform seizures just before and since examination of serum. Knee-jerks + at first (later normal). Later, as health improved, symptoms and signs recalling general paralysis of the insane passed, and he was regarded as an epileptic. *Petit mal*. There remains some dementia. He refused to work, saying people were after him, and that £1,000 was waiting for him at the works.

CASE 61.—Duration eleven years). A chronic case, apparently; demented, with hallucinations (brought from another asylum). Some weeks before death put to bed for physical debility; long-continued (days) facial twitchings, with some opisthotonos and teeth-grinding. No mental reaction; apparently only partially conscious. Serum tested when thus. *Post-mortem*.—No evidence of general paralysis of the insane. Died of cardiac mural degeneration.

Summary of Table III.

Total cases 20.

Sera tested: 15, of which—

14 were negative.

*1 showed retardation.

—
15

Negative results = 100 per cent.

(* This gave later a negative reaction twice.)

TABLE III.—Cases of Precocious Dementia.

	No. of case.	Age.	Sex.	Disorder.	Duration.	Blood-serum hæmolysis, + or o.	Cerebro-spinal fluid hæmolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
E. B. J—	62	34	F.	Precocious dementia	A few years	+	—	—	—
H. H—	63	27	M.	Precocious dementia, katatonia	At least 1 yr.	+	+	o	—
C. S—	64	24	M.	Precocious dementia, katatonia	A few years	+	—	—	—
B. K—	65	26	M.	Precocious dementia	Several years	+	—	—	—
LeG—	66	29	F.	Precocious dementia	About 1 yr.	+	—	—	—
M. S—	67	24	M.	Adolescent mania, ? precocious dementia	At least 2 yrs.	+	—	—	—
O. W—	68	26	M.	Precocious dementia, katatonia	Some years	+	+	o	—
L. J—	69	34	F.	Precocious dementia	About 2 yrs.	+	—	—	Sister to No. 62.
W. H. C—	70	22	M.	Precocious dementia, katatonia	Several years	+	—	—	Brother to No 75.
L. P—	71	21	M.	Precocious dementia	Several years	+	—	—	—
A. S—	72	18	F.	Precocious dementia, katatonia	8-12 mos.	+	—	—	—
M. O—	73	26	F.	Precocious dementia, katatonia	Several years	+	—	—	—
E. F. C—	74	23	F.	Precocious dementia	3-6 mos.	+	—	—	—
E. J. C—	75	20	M.	Precocious dementia, katatonia	9 mos.	+	—	—	—
T. P—	76	30	M.	Precocious dementia	Unknown	—	+	o	—
N. R—	77	25	M.	Precocious dementia	Unknown	—	+	o	—
J. O'B—	78	24	M.	Precocious dementia	Unknown	—	+	o	—
B. P—	79	36	M.	Precocious dementia	Unknown	—	+	o	—
C. O'B—	80	28	M.	Precocious dementia	Unknown	—	+	o	—
E. P—	81	22	F.	Precocious dementia	Several years	Retardation	—	—	See notes for subsequent negative reactions.

Cerebro-spinal fluid tested: 7, of which—

7 were negative = 100 per cent.

Nonne-Apelt in 7 (the same cases)—

7 were negative = 100 per cent.

The blood-sera and cerebro-spinal fluids came from different cases, except in two instances, in which the cerebro-spinal fluid reaction and Nonne-Apelt were, like the blood, both negative.

Notes to Cases in Table III.

No. of case.		
62.	Reaction negative with blood	. 15 : 11 : 09.
63.	Reaction negative with blood	. 15 : 11 : 09.
	" " with C.S.F.	. 6 : 12 : 09.
64.	Reaction negative with blood	. 15 : 11 : 09.
65.	Reaction negative with blood	. 15 : 11 : 09.
66.	Reaction negative with blood	. 15 : 11 : 09.
67.	Reaction negative with blood	. 15 : 11 : 09.
68.	Reaction negative with blood	. 15 : 11 : 09.
	" " with C.S.F.	. 29 : 11 : 09.
	Nonne-Apelt negative . . .	. 29 : 11 : 09.
69.	Reaction negative with blood	. 15 : 11 : 09.
70.	Reaction negative with blood	. 21 : 2 : 10. Brother of No. 14.
71.	Reaction negative with blood	. 7 : 3 : 10.
72.	Reaction negative with blood	. 25 : 4 : 10.
73.	Reaction negative with blood	. 25 : 4 : 10.
74.	Reaction negative with blood	. 25 : 4 : 10.
75.	Reaction negative with blood	. 25 : 4 : 10.
76.	Reaction negative with C.S.F.	. 21 : 11 : 10.
	Nonne-Apelt negative . . .	. 21 : 11 : 10.
77.	Reaction negative with C.S.F.	. 21 : 11 : 10.
	Nonne-Apelt negative . . .	. 21 : 11 : 10.
78.	Reaction negative with C.S.F.	. 21 : 11 : 10.
	Nonne-Apelt negative . . .	. 21 : 11 : 10.
79.	Reaction negative with C.S.F.	. 21 : 11 : 10.
	Nonne-Apelt negative . . .	. 21 : 11 : 10.
80.	Reaction negative with C.S.F.	. 21 : 11 : 10.
	Nonne-Apelt negative . . .	. 21 : 11 : 10.
81.	Hæmolysis retarded . . .	. 21 : 2 : 10.
	Reaction negative in serum .	. 28 : 2 : 10. With 0.1 to 0.4 c.cm. amboceptor. In same state.
	" " " . . .	. 8 : 11 : 10. Patient in same state.

Summary of Table IV.

Total cases 22.

Blood-sera tested: 22, of which—

5 were positive = 22.73 per cent.

1 showed retardation = 4.54 "

16 were negative = 72.73 "

22 100.00 "

TABLE IV.—Cases of Epilepsy.

No. of case.	Age.	Sex.	Disorder.	Duration.	Blood-serum hemolysis, + or o.	Cerebro-spinal fluid hemolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
J. M.— C. O'L.— E. S.—	47 69 28	M. F. F.	Epilepsy " "	Several years 2-3 yrs. Several years	+ + o	+ + o	o o o	— — Reaction altered in blood and C.S.F., and in opposite direction at interval of one year; no change in patient. (Blood and C.S.F. positive once and negative twice.)
J. W.— W. B.— J. D.— W. J. B.— E. H.— J. J. O'L.— P. O'C.—	85 86 87 88 89 90 91	M. M. M. M. M. M. M.	" " " " " " "	" " " " " Unknown Many years	o + + + + + o	+ + + + + + +	o o o o o o o	— — — — — Sore on penis when young admitted, also gonorrhoea. Scar on glans now. Ten mos. before serum first examined both testes hard and enlarged; no testicular sensation; also double hydrocele. On full doses pot. iod. for 6 weeks (this was 10 mos. before serum tested). One testicle atrophied later. Origin probably syphilitic.
G. J.— D. McG.—	27 36	M. M.	" "	Years, perhaps always Unknown	Retardation o	— Retardation	— o	— Reaction negative in blood nearly 9 mos. later; clinically no change. It was on this second occasion that C.S.F. gave retardation.
J. R.— H. H. R.— G. C.— E. J. C.—	38 26 24 36	M. M. M. M.	" " " "	Many years Several years " Many years	+ + + o	— — — Retardation	— — — o	— — — Positive twice and negative twice in 9 mos.; clinically no change. Positive with increasedamboceptor. Retardation in C.S.F. when blood gave negative reaction.
E. W.— C. B.— A. W.— T. H.— A. O'C.— M. E.—	22 62 26 101 102 103	M. F. F. F. F. F.	" " " " " "	3-4 yrs. Unknown 2 yrs. A few weeks Several years "	+ + + + + +	— — — — — —	— — — — — —	— — — — — —

Cerebro-spinal fluid tested: 12, of which—

1 was positive	= 8'33 <i>per cent.</i>
2 showed retardation	= 16'66 "
9 were negative	= 75'00 "
12	99'99 "

Nonne-Apelt tested: 12 (same cases as cerebro-spinal fluid)—

All negative = 100'00 *per cent.*

In the cases in which the serum gave a positive reaction (5) the cerebro-spinal fluid gave a positive in one (but this subsequently was negative twice), retardation of hæmolytic in two, and a negative reaction in the remaining two. Of these five sera, No. 84 (E. S—), 93 (D. McG—), and 97 (E. J. C—) gave varying results at different dates; Nos. 85 (J. W—) and 91 (P. O'C—) were consistently positive. No. 91 was regarded as syphilitic. As a result of a second Wassermann, therefore, only 9 *per cent.* of the sera were positive.

In the one case in which the cerebro-spinal fluid was positive the reaction was only positive once and was negative twice a year later.

Notes to Cases in Table IV.

No. of case.			
82.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative.	. 6 : 12 : 09.	
83.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 13 : 12 : 09.	
	Nonne-Apelt negative.	. 13 : 12 : 09.	
84.	Reaction positive with blood	. 29 : 11 : 09.	
	" negative "	. 28 : 11 : 10.	In same state.
	" " "	. 23 : 1 : 11.	
	" " with C.S.F.	. 13 : 12 : 09.	
	" " "	. 23 : 1 : 11.	
	" positive "	. 28 : 11 : 10.	
	Nonne-Apelt negative.	. 13 : 12 : 09.	
	" " . .	. 28 : 11 : 10.	
	" " . .	. 23 : 1 : 11.	
85.	Reaction positive with blood	. 29 : 11 : 09.	
	" " negative with C.S.F.	. 8 : 11 : 10.	
	" " positive with "	. 6 : 12 : 09.	
	" " positive with blood	. 5 : 12 : 10.	Same state.
	Nonne-Apelt negative	. 5 : 12 : 10.	
86.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative.	. 6 : 12 : 09.	
87.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative	. 6 : 12 : 09.	
88.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative	. 6 : 12 : 09.	
89.	Reaction negative with blood	. 6 : 12 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative	. 6 : 12 : 09.	
90.	Negative reaction with blood	. 28 : 2 : 10.	
	" " with C.F.S.	. 21 : 11 : 10.	Same state.
	Nonne-Apelt negative	. 21 : 11 : 10.	

No. of case.			
91.	Positive reaction with blood	7 : 3 : 10.	
	" " " "	5 : 12 : 10.	Same state.
	Negative reaction with "C.S.F.	5 : 12 : 10.	
	Nonne-Apelt negative	5 : 12 : 10.	
92.	Retarded hæmolysis with blood	7 : 3 : 10.	
	Reaction negative with blood	14 : 3 : 10.	
	" dubious "	14 : 3 : 10.	With 0.2 c.c. and 0.3 c.c.
93.	Reaction positive with blood	7 : 3 : 10.	
	" negative "	28 : 11 : 10.	No change.
	Retarded hæmolysis with C.S.F.	28 : 11 : 10.	
	Nonne-Apelt negative	28 : 11 : 10.	
94.	Retarded hæmolysis with blood	7 : 3 : 10.	
	Reaction negative with blood	21 : 3 : 10.	
	" positive "	21 : 3 : 10.	With 0.2 c.c. serum.
	" negative "	21 : 3 : 10.	With 0.3 c.c. serum.
95.	Reaction negative with blood	7 : 3 : 10.	
	" " "	21 : 3 : 10.	
	" " "	21 : 3 : 10.	With 0.2 c.c. and 0.3 c.c.
96.	Reaction negative with blood	7 : 3 : 10.	
97.	Reaction positive with blood	7 : 3 : 10.	
	" negative "	21 : 3 : 10.	
	" positive "	21 : 3 : 10.	With 0.3 c.c. ret. with 0.2 c.c.
	" negative "	12 : 12 : 10.	In same state.
	Retarded hæmolysis with C.S.F.	12 : 12 : 10.	
	Nonne-Apelt negative	12 : 12 : 10.	
98.	Reaction negative with blood	21 : 3 : 10.	Positive with 0.3 c.c.
99.	Reaction negative with blood	30 : 6 : 10.	
100.	Reaction negative with blood	30 : 6 : 10.	
102.	Reaction negative with blood	30 : 6 : 10.	
103.	Reaction negative with blood	21 : 11 : 10.	

Summary of Table V.

Total cases 17.

Sera tested in 17, of which—

7 were positive	= 41.17 per cent.
1 gave retardation	= 5.89 "
9 were negative	= 52.94 "
17	100.00 "

Cerebro-spinal fluid tested in 3 cases—

All negative = 100 per cent.

Nonne-Apelt negative in same 3 = 100 per cent.

Of the seven positive sera the reaction was negative on the second occasion in 5; in 2 (A. R— and G. J—) it was positive respectively twice and thrice. In A. R— there were signs of congenital syphilis. The case (G. L—), in which there was retardation of hæmolysis, was negative on the second occasion.

The second Wassermann test, therefore, brought the percentage of positive reactions down to 11.9 per cent.

TABLE V.—Cases of Idiocy or Imbecility with Epilepsy.

No. of case.	Age.	Sex.	Disorder.	Duration.	Blood-serum hæmolysis, + or o.	Cerebro-spinal fluid hæmolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
W. C—	104	24	M.	Idiocy or imbecility with epilepsy	Congenital	+	o	—
S—	105	16	M.	"	+	+	o	—
W. C—	106	15	M.	"	o	—	—	Reaction at first positive, negative 11 mos. later. No clinical change.
A. R—	107	13	M.	"	o	—	—	Evidence of congenital syphilis.
S. T—	108	13	M.	"	o	—	—	Reaction at first positive, negative 11 mos. later. No clinical change.
G. J—	109	12	M.	"	o	—	—	—
E. B—	110	24	M.	"	+	—	—	Reaction at first positive, negative nearly 9 mos. later. No clinical change.
E. L—	111	17	F.	"	o	—	—	—
S. G—	112	17	F.	"	+	—	—	—
G. L—	113	22	F.	"	Retardation	—	—	Hæmolysis at first retarded; reaction negative with increasing amboceptor 1 week later. No clinical change.
W. L—	114	21	M.	"	+	—	—	—
I. P—	115	28	F.	"	+	—	—	—
K. McN—	116	25	M.	"	+	—	—	—
E. W—	117	22	M.	"	+	—	—	—
J. S—	118	29	M.	"	+	+	o	Reaction at first positive in serum, 9 mos. later negative. No clinical change.
T. I—	119	28	M.	"	+	—	—	—
M. A—	120	30	F.	"	o	—	—	Reaction at first positive, nearly 10 mos. later negative. No clinical change.

Notes on Table V.

No. of case.			
104.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative.	. 6 : 12 : 09.	
105.	Reaction negative with blood	. 29 : 11 : 09.	
	" " with C.S.F.	. 6 : 12 : 09.	
	Nonne-Apelt negative.	. 6 : 12 : 09.	
106.	Reaction positive with blood	. 13 : 12 : 09.	
	" negative "	. 8 : 11 : 10.	No clinical change.
107.	Reaction positive with blood	. 13 : 12 : 09.	
	" " "	. 8 : 11 : 10.	With 0.02 c.c. amboceptor.
108.	Reaction positive with blood	. 13 : 12 : 09.	
	" negative "	. 8 : 11 : 10.	No clinical change.
109.	Reaction positive with blood	. 13 : 12 : 09.	
	" " "	. 8 : 11 : 10.	
	" " "	. 12 : 12 : 10.	
111.	Reaction positive with blood	. 21 : 2 : 10.	
	" negative "	. 8 : 11 : 10.	No clinical change.
112.	Reaction negative with blood	. 21 : 2 : 10.	
113.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction negative with blood	. 28 : 2 : 10.	Up to 0.4 c.c. amboceptor. No clinical change.
114.	Reaction negative with blood	. 28 : 2 : 10.	
115.	Reaction negative with blood	. 7 : 3 : 10.	
116.	Reaction negative with blood	. 7 : 3 : 10.	
117.	Reaction negative with blood	. 21 : 3 : 10.	
	Retardation with blood	. 7 : 3 : 10.	
	Reaction negative with blood	. 7 : 3 : 10.	With 0.2 c.c. amboceptor
	" positive "	. 7 : 3 : 10.	With 0.3 c.c.
118.	Reaction positive with blood	. 7 : 3 : 10.	
	" negative "	. 5 : 12 : 10.	No clinical change.
	" " with C.S.F.	. 12 : 12 : 10.	
	Nonne-Apelt negative.	. 12 : 12 : 10.	
119.	Reaction negative with blood	. 7 : 3 : 10.	
120.	Reaction positive with blood	. 21 : 2 : 10.	
	" negative "	. 5 : 12 : 10.	No clinical change.

Summary of Table VI.

Total cases 29.

Sera tested : 29, of which—

8 were positive	= 27.6 per cent.
5 gave retardation	= 17.24 "
16 were negative	= 55.17 "
—	—
29	100.01 "

Cerebro-spinal fluid tested—

1 negative.

Nonne-Apelt, in same—

Negative.

TABLE VI.—Cases of Idiocy or Imbecility.

No. of case.	Age.	Sex.	Disorder.	Duration of disorder.	Blood-serum hemolysis, + or o.	Cerebro-spinal fluid hemolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
H. J. H—	121	M.	Idiocy or imbecility	Congenital	o	—	—	Reaction at first positive, 11 mos. later negative. No clinical change.
V. D—	122	F.	Ditto	"	o	—	—	Reaction at first positive, 12 mos. later negative. No clinical change. No signs of congenital syphilis.
W. C—	123	F.	"	"	o	—	—	—
H. J. C—	124	M.	"	"	+	—	—	—
T. E. J—	125	M.	"	"	+	—	—	—
H. C—	126	M.	"	"	o	—	—	Reaction at first positive, 11 mos. later negative. No clinical change.
E. P—	127	F.	"	"	+	—	—	—
S. M—	128	F.	"	"	Retardation	—	—	Mongolian type. Hemolysis first retarded, 1 week later reaction negative. No clinical change. Same results as last. Same results as last.
T. W—	129	F.	"	"	"	—	—	—
P. H—	130	F.	"	"	"	—	—	—
M. C—	131	F.	"	"	"	—	—	—
F. P—	132	F.	"	"	+	—	—	—
R. B—	133	F.	"	"	o	—	—	Reaction at first positive, nearly 10 mos. later negative. No clinical change.
B. B—	134	F.	"	"	+	—	—	—
D. E—	135	M.	"	"	o	—	—	Retarded hemolysis and reaction positive, with 1 week's interval. Reaction negative 10 mos. later. No clinical change. Microcephalic. No signs of congenital syphilis.
G. S—	136	F.	"	"	+	—	—	—
M. A—	137	F.	"	"	+	—	—	"Facile," slow, signs of cretinism in face, tongue, hands.

TABLE VI—continued.

	No. of case.	Age.	Sex.	Disorder.	Duration of disorder.	Blood-serum hæmolysis, + or o.	Cerebro-spinal fluid hæmolysis, + or o.	Nonne-Apelt reaction, + = positive, o = negative.	Remarks.
C. J—	138	27	M.	Idiocy or imbecility	Congenital	+	—	—	—
J. D—	139	28	M.	Ditto	"	+	—	—	—
M. L—	140	30	F.	"	"	+	—	—	—
H. W—	141	30	M.	"	26 yrs.	o	+	o	Reaction first positive in serum, 9 mos. later negative, and same date negative in C.S.F. No clinical change. No signs of congenital syphilis.
R. W—	142	42	M.	"	Congenital	+	—	—	—
T. B—	143	55	M.	"	"	+	—	—	Well-marked congenital syphilis. (Moved to another asylum.)
A. W—	144	15	M.	"	"	o	—	—	Hæmolysis first retarded, 3 weeks later reaction negative with two strengths amboceptor. No clinical change.
A. W. P—	145	14	M.	"	"	Retardation	—	—	—
A. F. H—	146	—	M.	"	"	+	—	—	Microcephalic.
K. W—	147	10	F.	"	"	+	—	—	"Moral" imbecile.
H. W—	148	—	F.	"	"	+	—	—	—
S. A. P—	149	—	F.	"	"	+	—	—	—

In six of the eight positive serum-reactions the result was negative on a second examination. Of the two remaining cases, A. W— had well-marked signs of congenital syphilis. All five of the "retardation" cases proved negative on a second examination.

A second Wassermann test, therefore, reduces the number of positive reactions in the serum to 7 *per cent*.

Notes to Table VI.

No. of case.			
121.	Reaction positive with blood	. 13 : 12 : 09.	
	" negative "	. 8 : 11 : 10.	No clinical change.
122.	Reaction positive with blood	. 13 : 12 : 09.	
	" negative "	. 5 : 12 : 10.	No clinical change.
123.	Reaction positive with blood	. 13 : 12 : 09.	
	" " "	. 14 : 2 : 10.	
124.	Doubtful . . . . .	. 13 : 12 : 09.	
	Negative . . . . .	. 14 : 2 : 10.	
	" . . . . .	. 8 : 11 : 10.	
126.	Reaction positive with blood	. 6 : 12 : 09.	
	" negative "	. 8 : 11 : 10.	No clinical change.
128.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction negative with blood	. 28 : 2 : 10.	With 0.2 c.c., 0.3 c.c., 0.4 c.c. amboceptor. No clinical change.
129.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction negative with blood	. 28 : 2 : 10.	From 0.1 c.c. to 0.4 c.c. amboceptor. No clinical change.
130.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction negative with blood	. 28 : 2 : 10.	From 0.1 c.c. to 0.4 c.c. amboceptor. No clinical change.
131.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction negative with blood	. 28 : 2 : 10.	From 0.1 c.c. to 0.4 c.c. amboceptor. No clinical change.
133.	Reaction positive with blood	. 21 : 2 : 10.	
	" negative "	. 5 : 12 : 10.	No clinical change.
135.	Retarded hæmolysis with blood	. 21 : 2 : 10.	
	Reaction positive with blood	. 28 : 2 : 10.	No clinical change.
	" negative "	. 12 : 12 : 10.	"
141.	Reaction positive with blood	. 7 : 3 : 10.	
	" negative "	. 5 : 12 : 10.	No clinical change.
	" " with C.S.F.	. 5 : 12 : 10.	
	Nonne-Apelt negative	. 5 : 12 : 10.	
142.	Reaction negative with blood	. 7 : 3 : 10.	
	" " "	. 21 : 3 : 10.	0.1 c.c. to 0.2 c.c. amboceptor.
	Retarded hæmolysis with blood	. 21 : 3 : 10.	With 0.3 c.c. amboceptor.
145.	Reaction negative with blood	. 14 : 11 : 10.	With 0.1 c.c. and 0.2 c.c. amboceptor. No clinical change.
147.	Reaction negative with blood	. 24 : 10 : 10.	
	" " "	. 28 : 11 : 10.	

TABLE VII.—*Various Kinds of Mental Disorder.*

	No. of case.	Age.	Sex.	Disorder.	Duration of disorder.	Blood-serum hæmolysis, + or o.	Cerebro-spinal fluid hæmolysis, + or o.	Nonne-Apel't reaction, + = positive, o = negative.	Remarks.
J. N—	150	33	F.	Dementia (signs of late syphilis)	4 mos.	o	+	o	Blind; keratitis; post-synechia; black pigment in choroid; lens-opacities. (See remarks <i>re</i> drugs in comments on historical statements.) —
G. H—	151	25	F.	Acute delusional insanity	4 mos.	+	—	—	—
N. A—	152	31	M.	Acute melancholia	Recent	+	+	o	—
J. M—	153	59	M.	Acute melancholia	3-4 mos.	+	—	—	Autopsy: died of cardio-vascular degeneration and bronchitis; no dementia paralytica.
I. P—	154	23	F.	Acute mania	1 mo.	+	—	—	Recovered and left.
M. I—	155	34	F.	Mania	2-3 mos.	+	—	—	" "
M. P—	156	50	F.	Delusional, alcohol	A few days	+	—	—	" "
E. F—	157	36	F.	Mania	1 mo.	+	—	—	" "
T. S—	158	27	M.	Delusional	6 weeks at least	+	—	—	Recovered and left. Gonorrhœa, chancre, indurated gland. Has for some weeks been and still at time of treatment was under Hg. Antigen from excised gland gave hæmolysis +, with his own and with a general paralytic blood-serum.
M. L—	159	39	F.	Delusional	? 12 years	+	—	—	Recovered and left.
J. J—	160	55	M.	Mania, aortic regurgitation	2 mos.	o	—	—	Old soldier served abroad much, ? syphilis.
C. H—	161	39	M.	Chronic delusional insanity	—	—	+	o	—

TABLE VII—continued.

	No. of case.	Age.	Sex.	Disorder.	Duration of disorder.	Blood-serum hamolysis, + or o.	Cerebro-spinal fluid hamolysis, + or o.	Nonne-Apel't reaction, + = positive, o = negative.	Remarks.
R. P—	162	48	M.	Chronic delusional insanity	At least 13 yrs. (uncertain)	—	+	o	—
W. R—	163	48	M.	Chronic delusional insanity	3-4 yrs.	—	+	o	—
S. J. O—	164	—	M.	Adolescent mania	—	+	—	—	—
R. R—	165	46	M.	Dementia	—	—	+	o	—
A. J. B—	166	—	M.	Adolescent mania	—	o	—	—	[Blood done a second time after reading of paper; haemolysis.]
T. D—	167	37	M.	Delusional insanity	At least 1 yr. (uncertain)	—	+	o	—
W. W—	168	66	M.	Chronic mania	At least 14 yrs. (uncertain)	—	+	o	—
D. E—	169	22	F.	Acute mania	1-2 mos.	+	—	—	Second attack.
M. M—	170	29	F.	Delusional insanity	1 mo.	o	—	—	Cachectic. Extensive and deep scar right leg, inner side; old ulcer; small scar over left shin; been a barmaid and hotel servant. See remarks on drugs in comments on historical statements.
P. S—	171	36	M.	Delusional insanity with secondary dementia	6½ yrs.	+	—	—	—
F. I. M—	172	28	M.	Acute mania	1 mo.	Some retardation	—	—	Gonorrhœa; recovered and left.

Summary of Table VII.

Total cases	.	.	.	.	.	.	23.
<i>Sera tested : 17, of which—</i>							
4 were positive	=	23.53	per cent.				
1 gave retardation	=	5.88	"				
12 were negative	=	70.58	"				
—		—					
17		99.99	"				
<i>Cerebro-spinal fluids tested : 8—</i>							
All were negative	=	100.00	per cent.				
<i>Nonne-Apelt in same cases—</i>							
All negative	=	100.00	per cent.				

Of the four positive reactions: one case (J. N—) was definitely syphilitic (acquired); another (J. J—) is a soldier who has served in the East, and has aortic disease; the third (M. M—) presents evidence of syphilis. This leaves only one case positive (6 *per cent.*) without any evidence of syphilis. [This done again subsequent to reading of paper, seven weeks after first occasion: reaction negative.] In the case giving retardation there was gonorrhœa on admission, but no evidence of syphilis.

Notes on Table VII.

No. of case.					
150.	Reaction positive with blood	.	15 : 11 : 09.		
	" " "	.	7 : 3 : 10.	With 0.2 c.c. amboceptor.	
	" negative "	.	7 : 3 : 10.	With 0.1 c.c. amboceptor.	
	" " with C.S.F.	.	22 : 11 : 09.		
	" " "	.	5 : 12 : 10.		
	Nonne-Apelt negative "	.	22 : 11 : 10.		
	" " "	.	5 : 12 : 10.		
152.	Reaction negative with blood	.	6 : 12 : 09.		
	" " with C.S.F.	.	13 : 12 : 09.		
	Nonne-Apelt negative	.	13 : 12 : 09.		
166.	Reaction positive with blood	.	23 : 1 : 11.		
	" negative "	.	13 : 3 : 11.		
170.	Reaction positive with blood	.	12 : 12 : 10.		
	" " "	.	21 : 1 : 11.		
	" " "	.	13 : 3 : 11.	[This subsequent to reading of paper.]	

Summary of Table VIII.

As a result of increasing the strength of the amboceptor to 1 in 5, nine out of eleven (81.81 *per cent.*) cases of positive hæmolysis remained positive (*i.e.*, no positive Wassermann obtained by increasing amboceptor). In the remaining two (18.18 *per cent.*) a positive hæmolysis became negative. In five cases the strength was increased to 1 in 3.3 when three still remained positive (60 *per cent.*); in two hæmolysis became retarded or negative (40 *per cent.*).

From the above it appears that in a considerable percentage of cases a positive Wassermann is obtainable, in the absence of such with the usual strength of amboceptor, by increasing the strength to even only twice the usual. But in the large majority of cases a negative reaction with amboceptor 1 in 10 is still negative when the strength of the amboceptor is doubled.

As a result of diluting the amboceptor sufficiently, negative or retarded hæmolysis is shown to be converted into positive, as *à priori* was to be expected.

TABLE VIII.—*Showing, for Cases of General Paralysis, the Variations Present in the Occurrence of the Reaction with Different Degrees of Serum-dilution.*

	Date.	Dilution of blood-serum giving hæmolysis, + or o.							Remarks.
		1 : 2'5.	1 : 3'3.	1 : 5.	1 : 10.	1 : 20.	1 : 50.	1 : 100.	
C. M—	13 : 5 : 10	—	Retarda- tion	+	+	—	—	—	—
	8 : 11 : 10	—	—	—	o	Retarda- tion	—	—	Just before death.
G. S—	8 : 11 : 09	—	—	—	+	—	—	—	—
	13 : 5 : 10	—	o	o	o	—	—	—	Two days before death.
E. B—	7 : 3 : 10	—	o	o	o	o	+	+	Pronounced case ; positive six times in one year.
	13 : 5 : 10	—	—	—	o	o	+	+	Pronounced case ; positive three times in year.
F. O'S—	13 : 5 : 10	—	—	—	+	+	+	+	—
J. H—	13 : 5 : 10	—	—	—	o	Retarda- tion	+	+	Pronounced case ; positive four times in year.
J. R. M—	13 : 5 : 10	—	—	—	o	+	+	+	Pronounced case ; positive twice in four months.
O—	7 : 3 : 10	—	o	o	o	+	—	—	Pronounced case ; positive three times in five months.
A. B—	7 : 3 : 10	—	o	o	o	o	—	—	Worse at this date.
	13 : 5 : 10	—	—	—	o	o	+	+	Positive three times, and negative twice in year.
C. H. B—	7 : 3 : 10	—	—	—	o	o	—	—	No obvious clinical change at different dates.
	13 : 5 : 10	—	—	—	+	+	+	+	Very pronounced case at this date ; very late in course.
	28 : 11 : 10	—	—	+	+	+	o	—	Ordinary demented type ; no special features.
S. N. D—	28 : 2 : 10	—	—	—	—	—	—	—	Ditto.
W. W—	14 : 2 : 10	—	—	—	o	+	—	—	—
	7 : 3 : 10	—	o	—	o	—	—	—	—
D. S. M—	7 : 3 : 10	—	—	—	o	+	—	—	—
	13 : 5 : 10	—	—	—	+	+	+	+	—

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TABLE VIII—continued.

	Date.	Dilution of blood-serum giving hæmolysis, + or o.						Remarks.
		1 : 2'5.	1 : 3'3.	1 : 5.	1 : 10.	1 : 20.	1 : 50.	1 : 100.
E. J—	21 : 3 : 10	—	—	+	+	—	—	—
	8 : 11 : 10	—	—	—	+	—	—	—
W. A. T—	28 : 11 : 10	—	—	+	+	—	—	—
	25 : 4 : 10	—	—	—	0	—	—	—
	12 : 12 : 10	—	—	—	Retarda- tion	—	—	—
H. J. W—	25 : 4 : 10	—	—	—	Retarda- tion	+	+	+
	13 : 5 : 10	—	+	+	+	—	—	—
	20 : 6 : 10	—	+	+	+	—	—	—
G. J—	25 : 4 : 10	—	—	—	0	+	+	+
E. J—	25 : 4 : 10	—	—	—	Retarda- tion	—	—	—
	13 : 5 : 10	—	+	+	+	—	—	—
	28 : 11 : 10	—	—	0	+	—	—	—
A. J. H.	20 : 6 : 10	—	—	—	0	+	+	—
W—	14 : 11 : 10	—	—	—	0	+	+	—
A. H—	20 : 6 : 10	—	—	—	0	+	+	—
W. J. K—	20 : 6 : 10	—	—	—	0	+	+	—
J. G—	24 : 10 : 10	—	—	—	0	+	Retarda- tion	—
J. H—	24 : 10 : 10	—	—	—	Retarda- tion	+	+	—
	14 : 11 : 10	—	—	0	+	—	—	—
H. S—	24 : 10 : 10	—	—	—	+	—	—	—
A. T. S—	14 : 11 : 10	—	—	—	0	—	—	—
M. C—	21 : 3 : 10	—	—	+	0	—	0	Retarda- tion

Disorder.	Date of test.	Dilution of blood-serum hemolysis, + or o.						Remarks.
		1:33.	1:3'3.	1:5.	1:10.	1:20.	1:50.		1:100.
E. M. W—	14:11:10	—	—	+	+	—	—	—
G. J—	7:3:10	—	—	—	Retardation	—	—	—
D. L—	14:3:10	—	—	+	+	—	—	—
J. R—	28:11:10	—	—	—	+	—	—	—
H. H. R—	7:3:10	—	+	o	+	—	—	—
E. J. C—	21:3:10	—	—	+	+	—	—	—
	7:3:10	—	+	—	+	—	—	—
	21:3:10	—	—	Retardation	+	—	—	—
	12:12:10	—	o	—	+	—	—	—
E. W—	21:3:10	—	—	+	+	—	—	—
M. L. L—	20:6:10	—	+	+	+	—	—	—
A. R—	13:12:09	—	—	—	o	—	—	—
	8:11:10	—	—	—	o	o	o	—
G. L—	21:2:10	—	—	—	Retardation	—	—	—
S. M—	28:2:10	+	+	+	+	—	—	—
	21:2:10	—	—	—	Retardation	—	—	—
T. W—	28:2:10	+	+	+	+	—	—	—
P. H—	21:2:10	—	—	—	Retardation	—	—	—
M. C—	28:2:10	+	+	+	+	—	—	—
D. E—	21:2:10	+	+	+	+	—	—	—
	28:2:10	—	—	—	Retardation	—	—	—
R. W—	12:12:10	—	—	o	+	—	—	—
A. W. P—	7:3:10	—	—	—	+	—	—	—
J. N—	21:3:10	—	—	+	+	—	—	—
	24:10:10	—	—	—	Retardation	—	—	—
	14:11:10	—	+	—	+	—	—	—
Dementia	15:11:09	—	—	—	+	—	—	—
	7:3:10	—	o	—	o	—	—	—
	5:12:10	—	—	—	o	—	—	—
Melancholia	28:11:10	—	—	+	+	—	—	—

It is shown that as a result of diminishing the strength of the amboceptor to 1 in 20, cases of negative hæmolysis at the usual strength still remain so, or show retarded hæmolysis, in fourteen out of eighteen or 77·7 *per cent.* of the total. Further, that in four instances (C. M—, S. W. D—, J. G—, and M. C—) hæmolysis remained negative or retarded in a dilution of 1 in 50, and that in M. C— it was still retarded at 1 in 100.

In four out of eighteen (22·2 *per cent.*) a negative hæmolysis became positive by diminishing the amboceptor to 1 in 20.

These differences cannot be correlated with clinical differences between the various cases.

From the dilution-columns it would appear that in the majority of cases diluted there was amboceptor available above the requirements of the usual test.

Summary of Table IX.

As a result of increasing the strength of the amboceptor to 1 in 5, thirteen out of sixteen (81·25 *per cent.*) cases of positive hæmolysis remained positive (*i.e.*, no positive Wassermann obtained by increasing amboceptor).

The remaining three (18·75 *per cent.*) became negative or showed retardation.

In twelve cases the strength was increased to 1 in 3·3 and eight still showed positive hæmolysis (66·8 *per cent.*); four showed retardation or negative hæmolysis (33·3 *per cent.*). In five cases the strength was increased to 1 in 2·5, and all still showed positive hæmolysis.

From the above it appears that in a considerable percentage of cases a positive Wassermann is obtained in the absence of such with the usual strength of amboceptor by increasing the strength, but in the majority of cases a negative Wassermann with amboceptor 1 in 10 is still negative when the strength of amboceptor is increased.

Summary of Table X.

Sera tested 27, of which 5 were positive and 22 negative.

The five positive sera gave a positive Wassermann with the usual test on same date.

Of the 22 sera giving negative reactions, 11 gave the same with the usual test on same dates, and 11 gave positive reactions on same dates.

Homologous antigen gave a positive reaction in the two cases in which it was used.

Cerebro-spinal fluid tested, 8, all negative. Of these 5 were negative with the usual test on same dates, and 3 were positive on same dates.

So that, of 27 sera tested with ordinary and general paralytic liver antigen, 16, or 59·2 *per cent.*, gave a similar result with both.

The few observations made with the cerebro-spinal fluid agree with the above.

Summary of Table XI.

Total cases 60. In 41 of these the diagnosis of syphilis was certain or highly probable; three of these had undergone prolonged anti-syphilitic treatment, and when tested gave negative reactions. The remaining 38 reacted positively in 34 instances; of the other 4, three were negative (two cases of aneurysm, one a doubtful case of syphilis), and the fourth (a case of tabes) showed a partial reaction.

Tabulating:

38 cases of syphilis certain or probable

	<i>per cent.</i>
34 were positive	89·47
1 showed a partial reaction	2·63
3 were negative	7·89
	<hr/>
	99·99

TABLE X.—*Observations on Complement Fixation, using Liver Extracts from Cases of General Paralysis of the Insane.*

	Disorder.	Blood-serum reaction* hæmolysis, + = positive, o = negative.	Cerebro-spinal fluid hæmo- lysis, + = positive, o = negative.	Remarks.
M. M—	General paralysis of insane or para-syphi- litic condition	+	—	Positive Wassermann on same date.
W—	General paralysis of the insane	+	—	Ditto.
J. M—	Ditto	o	—	"
C. M—	"	o	—	Homologous antigen. Positive Wassermann on same date.
H. J. C—	Idiot	+	—	Negative Wassermann on same date with blood-serum.
H. C. M—	"	+	—	Ditto.
S. T—	Idiot with epilepsy	+	—	"
G. J—	"	o	—	Positive Wassermann on same date with blood-serum.
E. L—	"	+	—	Negative Wassermann on same date.
E. P—	Idiot	+	—	Ditto.
J. H—	General paralysis of the insane	+	—	C.S.F. same date negative Wassermann.
H. S—	Ditto	—	+	Ditto.
E. P—	"	—	+	"
J. G—	"	—	+	"
J. M—	"	o	—	Blood-serum positive Wasser- mann on same date.
D. McC—	"	+	—	Ditto.
A. J. S—	"	+	—	Blood-serum negative Wasser- mann on same date.
E. M. W—	"	+	—	Ditto.
E. G—	?	—	+	C.S.F. negative Wassermann on same date.
M—	General paralysis of the insane	o	—	Blood-serum positive Wasser- mann on same date. Homo- logous antigen used.
S. G. O—	Adolescent insanity	+	—	Blood-serum negative Wasser- mann on same date.
H. P—	General paralysis of the insane	+	—	Ditto.
J. G—	Ditto	+	—	Blood-serum positive Wasser- mann on same date.
M. P—	"	+	—	Ditto.
A. J. B—	Alcoholic mania	+	—	"
E. B—	General paralysis of the insane (syph.)	+	—	"
J. O. S—	Ditto	+	—	"
W. J. M—	"	+	+	"
A. H—	"	+	+	"
M. J. M—	"	+	+	Blood-serum and C.S.F. posi- tive Wassermann on same date.
S. J. K—	"	+	+	Blood-serum and C.S.F. nega- tive Wassermann on same date.

* With liver-antigen from a general paralytic.

TABLE XI.—*Cases (Syphilis, etc.) from Cardiff Infirmary.*

	No. of case.	Disease.	Blood-serum hæmolysis, + = positive, o = negative.	Remarks.
J. A. B—	1	Tertiary syphilis	o	—
E. H—	2	Secondary syphilis	o	—
H—	3	Sudden death	o	P.M.—Evidence of syphi- lis; scars on legs.
E. H—	4	Tertiary syphilis	o	—
W. J—	5	Interstitial keratitis	o	—
W. J. C—	6	Primary sore on tonsil	o	—
E. C—	7	Hydronephrosis	o	—
W. F. L—	8	Tertiary syphilis	o	—
W. G—	9	Tertiary syphilis; ulce- ration of skin	o	—
R. T—	10	Growth on left side of skull	o	Signs of syphilis; cleared up under treatment.
T. H—	11	Charcot's joint	o	—
E. S—	12	Enlargement of testis	o	—
W. T—	13	Femoral aneurysm	o	—
J. M—	14	Aneurysm (aorta)	o	—
T. K—	15	Gumma of tongue	o	Cleared up under anti-syphi- litic treatment.
J. C—	16	Primary sore on lip	o	—
B—	17	Tertiary syphilis; ulce- ration of nasal septum	o	—
Dr. C. T—'s case	18	Fibroma of hip	o	Exposure to infection ad- mitted.
D. D—	19	Tertiary syphilis	o	—
F. P—	20	Aneurysm	o	—
K. A—	21	Tertiary syphilis	o	—
L. A—	22	"Normal"	o	Child of preceding.
I. F—	23	Secondary syphilis	o	—
I—	24	"	o	Husband of preceding.
E. H—	25	Congenital "syphilis; interstitial keratitis	o	—
H. G. C—	26	Gumma of arm, ? sar- coma	o	Cleared up under iodide; history of syphilis.
A. P—	27	Secondary syphilis	o	—
F—	28	Syphilis	o	Infection 15 years ago.
R. W—	29	Abortion	o	—
J. W—	30	? Syphilis	o	—
Dr. Parson's case	31	Secondary syphilis	o	—
F. D—	32	Malaria	o	Fever recently. No signs of syphilis (but may have had it; never treated for it.)
A. M—	33	Abortion	o	—
Dr. P—'s case	34	Secondary syphilis	o	Positive hæmolysis 6 weeks after injection of "606."
W. B—	35	Tabes	Retardation	—
H. I—	36	? Syphilis	+	—
J. H—	37	Subclavian aneurysm	+	—

TABLE XI—*continued.*

	No. of case.	Disease.	Blood-serum hæmolysis, + = positive, o = negative.	Remarks.
W. T—	38	Aneurysm of innominate artery	+	History of syphilis.
Dr. C. T—'s case	39	Syphilis	+	3 years' treatment.
Dr. P—'s case	40	"	+	2 years' treatment.
E. W. J—'s case	41	"	+	" "
J. E—	42	Charcot's joint (knee)	+	Doubtful knee-joint. No signs or history of syphilis.
K—	43	Sarcoma of hip	+	? Gumma. (Diagnosis of periosteal sarcoma; confirmed microscopically.)
Mrs. C—	44	Enlarged liver	+	Malignant.
W. J—	45	Sarcoma of femur	+	—
X—	46	Prostatitis	+	Gonorrhœal infection.
L. M. J—	47	Marasmus	+	—
E. H—	48	Growth in liver	+	P.M.—Carcinoma.
G. G—	49	Growth on chest-wall (sarcoma)	+	Sarcoma.
A. L—	50	Hydatid of liver	+	—
E. S—	51	Growth on skull	+	Sarcoma. Confirmed microscopically.
I. R—	52	Hydatid liver	+	—
J. E—	53	Cerebral tumour	+	Proved a glioma.
T. S—	54	Bulbar paralysis	+	—
J. A—	55	Carcinoma of tongue	+	Diagnosis confirmed microscopically.
A. R—	56	Lupus of lip	+	—
J. H—	57	Arterio-sclerosis	+	—
D. P—	58	Lymphadenoma	+	—
T. D—	59	No diagnosis	+	—
C. P—	60	Mediastinal tumour	+	Sarcoma P.M.

*Comments upon Statements appearing in the Historical Survey
based upon the Experience of the Present Writers.*

As to the frequency of the reaction in the serum in general paralysis of the insane, our percentage of 75·5 positive results (excluding cases of mere retardation of hæmolysis) agrees most closely with that obtained by Muirhead (76·7 *per cent.*), and is much below the percentages cited from the general literature by Smith and Candler (86·6 *per cent.*), still lower than the 90 *per cent.* to 100 *per cent.* of German workers. We would lay stress upon the fact that the figure obtained by us in the cases of syphilis from the Cardiff Infirmary, which were examined

concurrently day by day with the cases from the Cardiff Mental Hospital, and in the same way with the same reagents, and which therefore furnish a most important control, was 89·47 *per cent.*

As to *frequency of the reaction in the liquor cerebro-spinalis in general paralysis of the insane*; our percentage of 41·46 *per cent.* positive results (excluding cases of mere retardation of hæmolysis) is even more notably below the figures quoted from various authors in the historical survey. The nearest approach to it is made by the figures of Wassermeyer and Bering (50 *per cent.*) and Boas and Neve (52 *per cent.*). We should record the fact that all our cerebro-spinal fluids were thoroughly centrifuged before examination. As to this practice we find no statement made by the various writers quoted.

It is significant that Marie and Levaditi record a higher percentage of positive results in the cerebro-spinal fluid (80 *per cent.*) in cases with history of syphilis than in all cases taken together (whether syphilitic or unknown)—73 *per cent.*

In respect to the statement of Boas and Neve, that whereas they only obtained 52 *per cent.* of positive results in the cerebro-spinal fluid in general paralysis with 0·2 c.cm. amboceptor, the percentage rose to 90 when they doubled the amount. We have been interested in this observation, having regard to the fact that our percentage of positive results in the cerebro-spinal fluid is particularly low. We tested Boas and Neve's statement in seven cases, in which with the usual amount of amboceptor there was either a negative result, or merely retardation of hæmolysis. In five of these the reaction was negative with 0·4 c.cm of amboceptor, in one a previously negative result was converted into retardation, and in one a previously negative result became positive.

As to the *relative frequency of the reaction in the two fluids*; it is obvious that our results support those writers mentioned, who state that the reaction is more constant in the serum.

Wassermeyer and Bering's and Plaut and Nonne's statements that a negative reaction in the serum is always associated with a similar one in the cerebro-spinal fluid is not fully borne out by the few test-cases we have; in one out of eight the cerebro-spinal fluid was positive when the serum was negative. [Since the paper was read we have had two more cases with like results.]

Variability of the Reaction.

As to whether the serum reaction is present from the first in general paralysis, this is a point which experience derived from an institution to which patients are not brought in early stages of general paralysis of the insane cannot elucidate. To decide it tests must be made when patients are first seen by general practitioners and consultants, and therefore it will not be easy of decision, as under the existing conditions of the Wassermann test a laboratory worker could scarcely be asked to examine fluid from a case as it might arise.

If in our cases of general paralysis of the insane 1 and 2, and 18 and 26, the statement is borne out that the reaction is almost always present in the terminal stages, Cases 6 and 39, in which the reaction was negative just before death, serve to illustrate the exceptions.

The latter cases, as also Nos. 17, 22, and 35, and some of the cases with remission, controvert the statement that the reaction remains positive after it has once become so.

Cases 6, 17, 22, 35 and 39 controvert the statement that the reaction becomes increasingly positive as the malady progresses. Moreover, in those of our cases in which the reaction was positive on more than one occasion (such as 3, 5, 7, 16, 30, 35, 45) the reaction was as marked on the earlier as on the later occasions.

Our cases in which the cerebro-spinal fluid was re-examined after a lapse of time controvert the statement that there is an increase in the substance causing the reaction as the case progresses. There is no evidence of such increase.

Our cases do not support the view that the reaction is more marked in the later (third) stage than in the earlier (second) stage of the disease.

As regards the influence of remissions, Cases 21, 24, 28, 32, and 34, in which the reaction was negative (in the last case retarded) during remissions, go to support those who find that remissions affect the reaction. In Cases 28 and 34 it became positive in the blood upon termination of remission, and respectively negative and retarded slightly on return of remission, which is significant.

Cases such as 17, 22, 29, 30, 35, and 41 illustrate variations in the reaction without correlated clinical changes. In

Cases 6 and 39 there was such change, but the change was for the worse, and the reaction became negative.

Our experience supports the statement that intensity of reaction and severity of symptoms are not parallel.

Our results do not bear upon the question of the influence of anti-syphilitic drugs upon the reaction except in five cases. In the first, Case 150—dementia (not general paralysis of the insane) with syphilis—a positive reaction was obtained in the serum after anti-luetic drugs had been given by mouth for two months. After from five to six months of such treatment in usual doses the reaction became negative. A third examination gave a positive reaction, no drugs having been given for eight months. On the third occasion the cerebro-spinal fluid was also tested, and gave a negative reaction (both Wassermann and Nonne-Apelt). This is in accordance with the general experience, that in syphilis, even when the central nervous system is attacked (which presumably was the case in this instance), a positive reaction is rarely obtained in the cerebro-spinal fluid. In the second case (No. 170, delusional insanity), a positive reaction in the blood was still positive after one month of anti-syphilitic drugs, in fairly full doses by the mouth. In the last three (cases of syphilis from Cardiff Infirmary), the reaction was negative after respectively three, two, and two years of treatment.

To compare, now, our results in mental disorders other than general paralysis with those of the literature. Table II (with notes) shows that nine of eleven cases of doubtful general paralysis (81·81 *per cent.*), which eleven subsequently proved not to be instances of that disease, gave negative results with serum, while of the two (18·18 *per cent.*) which did give a positive result, one was negative on the second examination a year later, the other was diagnosed as a parasyphilitic state, not general paralysis. The same statistics apply to the cerebro-spinal fluid as to the serum, and here also one of the cases proved negative on a second examination two months later. In fact the second test reduces the positive results to 9·09 *per cent.* in these cases of Table II.

These non-general paralytics, therefore, give a high percentage of negative reactions.

Table III (dementia præcox) gives 100 *per cent.* of negative results in serum and in cerebro-spinal fluid, which is in disagree-

ment with the 26·3 *per cent.* of Raviart, Breton and Petit (who worked with cerebro-spinal fluid), and agrees with the results of Marie.

Table IV (epilepsy) on the face of it (22·73 *per cent.* of positive results in serum) is disconcerting to the upholders of the specificity of the Wassermann reaction, but this figure is whittled down very considerably when examined in the light of information in the footnotes (to 9 *per cent.*). We obtained retardation of hæmolysis in 16·6 *per cent.* in the cerebro-spinal fluid, this being about the number in which Raviart, Breton and Petit record a positive result. Our results do not, therefore, agree entirely with those writers (such as Boas and Neve, and Marie) who got uniformly negative results in epilepsy, but there is no serious disagreement.

Table V (idiocy with epilepsy) is subject to the same criticism as the last; if the positive results are corrected in the light of the footnotes they amount to 11·8 *per cent.* in the serum.

Similarly viewed Table VI (idiocy or imbecility) does not give more than 7 *per cent.* of positive results.

These results are one half less than those of Dean, who, however, worked with much greater material.

In Table VII, again (various kinds of mental disorder), the 23·53 *per cent.* of positive reactions is almost wholly explained by the existence of syphilis in three out of four of the cases concerned, and were these excluded the percentage of positive results would be only six. [The fourth case subsequently gave a negative reaction.]

The cerebro-spinal fluid and Nonne-Apelt results were wholly negative.

If these cases of known syphilis are excluded our results are in disagreement with those of Ensor (22 *per cent.* of positive results in "insane males"). But we are unaware what varieties of insanity he dealt with.

Our results clearly support the view that a positive reaction in the cerebro-spinal fluid in cases of insanity, such as are commonly received at mental institutions for the poor, is very strong evidence of general paralysis. Out of forty-two mental cases, non-general paralytics, whose cerebro-spinal fluid was examined, only three (or 7·1 *per cent.*) gave a positive reaction (two were negative later), two of these were amongst cases of

dubious general paralysis, and one was amongst cases of epilepsy ; two retarded hæmolysis (cases of epilepsy). These results approach those of Scott-Williamson, and Muirhead, and it may be affirmed that a positive reaction in the cerebro-spinal fluid in cases of insanity is practically proof-positive of the presence of general paralysis, if such is obtained more than once.

We would emphasise the fact that the majority of our cases of general paralysis (whether giving a positive or negative reaction) were examined twice, and often several times (see notes to cases). Twenty-five of the forty positive and retarded cases were examined twice or oftener. Of these twenty-five, twenty-one (84 *per cent.*) were positive more than once. Then, in non-general paralytic cases, a second examination was always made in a case giving a positive reaction. Out of twenty-six cases of this kind only nine (34·6 *per cent.*) gave a positive reaction on the second occasion—a figure greatly below that obtained in the general paralytics.

The literature is practically silent on this point of the repetition of the test, it being very seldom recorded whether or not a test was made more than once. Yet the point is clearly a highly important one.

From our experience, it would be unjustifiable to make a diagnosis in para-syphilitic diseases, at any rate, upon one positive reaction. Even when, in general paralysis, it has been twice or more positive (or retarded and positive), the reaction has in some of our cases been negative once or more. As to the significance of these variations we know nothing.

That variations occur in the strength of the reaction during the course of the disease (general paralysis) finds a parallel in the agglutination-phenomenon in infectious diseases. Provisionally it may be said that, as for the agglutination reaction, so for the Wassermann reaction, the absolute strength of the serum affords no index of the severity or otherwise of the clinical symptoms.

As regards the Nonne-Apelt reaction, in cases of general paralysis this was positive in 75 *per cent.*, a figure practically the same as that for the Wassermann reaction in the serum, and very greatly exceeding that for the reaction in the cerebro-spinal fluid. In cases other than general paralysis it was positive in only two out of thirty-eight, or 5·2 *per cent.* Both these cases

were in the table of doubtful general paralysis, and one was subsequently diagnosed as a metasymphilitic state (cerebro-spinal fluid negative in both). In addition there was a trace of the reaction in another case (also amongst the doubtful general paralytics), in which the cerebro-spinal fluid was positive.

Here again, then, in non-general paralytics, the close agreement of the Wassermann results (in the cerebro-spinal fluid) and those of the Nonne-Apelt reaction is noteworthy.

The nature of our material does not enable us to criticise the statements of Marinesco, Eichelberg and Bruckner as to the occasional occurrence of the Nonne-Apelt reaction in other diseases of the cerebro-spinal axis than general paralysis, but one would expect such, as proteids are probably increased in these diseases (a destructive process being present). The Wassermann reaction also occasionally occurs in lues of the central nervous system. Our results show the test to be as reliable as the Wassermann test in the serum, but just as we did not obtain the very high percentage of positive Wassermann results with serum which several writers give, so the Nonne-Apelt test in our hands failed to give the very high percentages claimed by certain writers whom we quote.

The want of accordance between the Wassermann reaction in the cerebro-spinal fluid and the Nonne-Apelt test is noteworthy; the latter occurred in many more cases than the former.

Conclusions.

(1) There is still considerable discrepancy amongst writers as to the frequency of occurrence of a positive Wassermann reaction in the serum in cases of general paralysis. Our percentage of positive results stands about mid-way between the lowest and the highest results recorded.

(2) A like discrepancy obtains in respect to the cerebro-spinal fluid. Our positive results in this instance are the lowest recorded.

(3) Diversity of opinion still obtains as to the relative frequency of occurrence of the reaction in these fluids in general paralysis. In our experience, it occurs far more frequently in the serum.

(4) A positive reaction occurs very rarely in cases of insanity

other than general paralysis if known cases of syphilis be excluded.

(5) Our results, together with those of many other workers, go to show that a negative reaction is sometimes obtained (both in the serum and cerebro-spinal fluid) in cases of general paralysis which are clinically typical, and have been proved by autopsy to be genuine cases.

(6) A diagnosis of general paralysis, or of absence of that disease, ought not to be made upon a single result, whether positive or negative, and whether with serum or cerebro-spinal fluid. There should be at least two, and preferably more, examinations, with intervals of some weeks between. It is necessary that a positive reaction be obtained in the cerebro-spinal fluid before a diagnosis can be made. Should the serum test prove negative it is justifiable to conclude that the cerebro-spinal fluid test would be the same.

In those of our positive reactions in which more than one test was performed, the second result was positive in cases of general paralysis in a very much greater percentage than in other mental cases.

(7) A repeated positive reaction in the cerebro-spinal fluid in a doubtful mental case with symptoms referable to the nervous system is for all practical purposes proof of general paralysis. It is an indication as significant as abolition of the light-reflex.

(8) The reaction may vary at different periods in the same case (of general paralysis) without any clinical reason. The pathological explanation of such variation is unknown.

There is evidence in our cases and in those of some of the authors quoted that the reaction becomes negative during a remission, but this important point remains to be decided by larger experience than any hitherto available as far as our own work and knowledge of the literature go.

(9) The Nonne-Apelt test is very generally admitted to be either as reliable or nearly as reliable as the Wassermann reaction, and this is borne out by our experience.

(10) Further experience is needed before it can be looked upon as safe to draw conclusions from the conversion of a positive into a negative hæmolysis by increasing the strength of the amboceptor.

(11) The persistence of a negative hæmolysis on dilution of

the amboceptor fluid presumably implies the existence of amboceptor in plenty, but does not necessarily imply that the disease is more severe than if there were no such persistence.

(12) The Wassermann reaction is more frequently positive in cases of syphilis than in those of general paralysis.

(¹) Read before the Quarterly Meeting of the Medico-Psychological Association, held at Cardiff City Mental Hospital, February 23rd, 1911.—(²) 80 per cent. if reckoned only upon those cases in which syphilis (contracted from eight to twenty-three years before) was certain or very probable (see p. 221).

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DISCUSSION,

At the Quarterly Meeting of the Medico-Psychological Association, held at Cardiff City Mental Hospital, March 23rd, 1911.

The PRESIDENT said he was sure the members had listened with very great pleasure to the able paper which had just been presented. He could not discuss it, but he was sure it would take its place as a very important contribution to scientific literature. It showed the importance, when systematic use was made of them, of laboratories being connected with asylums. If any members felt disposed to discuss the paper he hoped they would do so, and he was sure the authors would welcome their remarks.

Dr. W. A. PARKER said he could scarcely criticise the paper, but he wished to say that Dr. Gilmour got a percentage of 96 of general paralysis cases in which there were evidences of syphilis, and that was in 62 cases in Gartloch. His percentage for a series of 150 cases, part of them from outside, was practically the same. The method was somewhat different; it was an attempt to get a more delicate reaction. The details of that were in the hands of members, for they had been published in the *Journal of Mental Science*. He would like to add that in 10 cases in which the arsenical preparation "606" was used, there had been no alteration in the reaction after treatment; the treatment was absolutely ineffective; there had been no remission and no improvement, the Wassermann reaction being as distinct as ever after the "606" was used.

Dr. G. H. SAVAGE remarked that he was in the unfortunate position of having very little to say, but he had been deeply interested in the paper, in regard to which there were two or three things which required consideration. The paper might well be called an epoch-making exposition, for it set out the most careful work, guarded in the most thorough way, by very painstaking observers. So that the observations must be regarded as very trustworthy. It was a pleasure to hear

that it was not necessary to accept everything which had previously been said; one was not bound to say that every general paralytic was a syphilitic, at least, on the evidence of the Wassermann reaction. Two other points had struck him. One was that on one occasion there was a positive reaction in a case in which afterwards it was negative, and that that case proved subsequently to be one of injury. Recently that had come before him in an important way. A friend of his, who was an adviser to the Treasury in regard to pensions, had a case definitely brought before him. The man claimed a pension as the result of an injury. The defence was that it was not an injury, but that the man was syphilitic. If medical men were in a position to say definitely that in such a case the Wassermann reaction was positive, and that therefore the case was almost certainly syphilitic, it would go some way against the Workmen's Compensation Act. There was another practical point, which he knew had come before several members, namely, whether the medical man was running any serious risk in recommending a man who believed he was the subject of general paralysis of the insane, or a man who was a syphilophobic, to have his blood and spinal fluid tested. The wise man of the Bible said "Answer a fool according to his folly," but it had also been said "Answer not a fool according to his folly." In one case he fell in with a syphilophobic's desire, and he had his blood and spinal fluid examined. The result was negative, but the result did not satisfy the patient. He believed that often it would react similarly. He knew one or two cases in asylums who had definitely asked to have their blood examined, and in consultation with others it had been decided that it would be undesirable. But a time might be expected to come when such observers as Dr. Scholberg and Dr. Goodall would be able to point out that certain reactions definitely meant syphilis. But at present one had to wait and see.

Dr. PERCY SMITH desired to congratulate very heartily his old friend and colleague, Dr. Goodall, on the admirable work which was emanating from that institution, also Dr. Schölberg. He, Dr. Smith, was one of the people who had not had the opportunity of laboratory work; his work was chiefly clinical, and therefore he was glad to hear Dr. Schölberg say that there were some cases in which the clinical aspect was the one to be mainly relied upon. He understood there were cases of general paralysis in which, even late, there was found to be a negative Wassermann reaction; also that there were many cases in the early stage in which the reaction was likewise negative, although the physical signs might point to the disease, and that the positive reaction only developed as the disease progressed, *i.e.*, when the diagnosis had been made absolutely certain. Therefore the negative reaction in the early stages of the disease in a given case was not always of very great use to the physician. And if it was true that there might be a negative reaction in the later stages, it became doubtful whether the reaction helped much in diagnosis. Still, there could be no question that it was a most valuable aid to diagnosis in many of the cases. He would refer to one or two cases which had come under his own notice recently. One was that of a man who had had a very severe head injury, and that question of the relationship of head injury to general paralysis, especially with regard to the Workmen's Compensation Act, was one about which more would, no doubt, be heard in process of time. The injury which the man had to his head occurred whilst he was at the Cape. He was an engineer, and his head suddenly came into violent contact with an iron girder, with the result that he was rendered unconscious, and was in the hospital unconscious for several days, with seizures. As he was incapacitated he came home from the Cape, and recently attended at his, Dr. Percy Smith's, Out-patient Department at St. Thomas's Hospital. There was no history of syphilis which could be obtained, but he had marked tremor and hesitation of speech, his knee-jerks were exaggerated, his pupils were unequal and reacted badly to light, and there was a history of seizures. It seemed to be possibly a case which might be called traumatic general paralysis. He was admitted into St. Thomas's Hospital, where he had more seizures, and had been extremely confused mentally, while his physical signs remained the same. On taking his serum reaction, and, he believed, his cerebro-spinal fluid reaction, he was found to have a negative Wassermann, which seemed to confirm the absence of syphilis in his history. His cerebro-spinal fluid showed lymphocytosis, therefore everything pointed to it being a coarse cerebral or meningeal condition, apart from general paralysis. Still, the physical signs, which were

held to point to general paralysis, were very definite in him. No doubt a further Wassermann examination was imperative. There was another case which had been under his care, that of a man in a private asylum, whose serum reaction was taken and found to be positive. He had anti-syphilitic treatment for a considerable time, because although there was reason to believe, from the clinical point of view, that his mental condition was that of a general paralytic, yet the physical signs were entirely absent. There was a definite history of syphilis in his case, therefore the Wassermann reaction was not absolutely necessary. But even after considerable anti-syphilitic treatment he still had a positive reaction, and then Sir Almroth Wright gave him an injection of "606," after he had been under care for six months. From the mental point of view he had a remission—that is to say, his excited and exalted condition quieted down, and it became a question whether he could be kept in the institution or whether he could go home. But since he had had the "606" he had gradually and steadily become more excited and exalted, and now he had all the mental aspects of an exalted general paralytic. But the physical signs still remained in abeyance. It was interesting from the question of the importance of the positive Wassermann reaction, that at the Congress on the Care of the Insane, in Berlin, at which Dr. Macpherson and he were present, a paper was read showing that the Wassermann reaction was positive in many cases of malaria, apart from the question whether the patient had had syphilis or not. Therefore there was a doubt at present as to the importance of the Wassermann reaction in some cases, although in the majority of cases it was of the greatest possible value in the diagnosis of syphilis in general paralysis.

Dr. FAULKES desired to join in the thanks to the authors for their very interesting paper, and while doing so he would be glad to know whether they had compared their results with cell-counting in the cerebro-spinal fluid, and also whether they would be good enough to describe the details of the precipitation test. It appeared to him that the most valuable method was that which was most easily applied, that which could be used in the receiving rooms of the hospital; that was the method which would be most commonly practised. If a simple method instead of the complicated Wassermann reaction could be used, it would be of the most service to the general practitioner.

Dr. SCHÖLBERG replied that the cytological counts were not done.

Dr. GOODALL replied that those observers who had made an examination of the cells found that the cytological test and the Wassermann test did not necessarily agree with each other. The Nonne-Apelt test consisted in adding 2 c.cm. of saturated neutral ammonium sulphate to the like amount of cerebro-spinal fluid. The appearance of opalescence within three minutes meant a positive reaction.

The Continuous Administration of Sulphonal; its Dangers and the Precautions to be Adopted. By GEORGE M. ROBERTSON, M.B., F.R.C.P.Edin., Physician-Superintendent, Royal Asylum, Morningside, Edinburgh.

Historical.

FOR some time after the introduction of sulphonal, so highly appreciated was this new drug as a sedative, that every meeting of the Medico-Psychological Association resolved itself into a choir for singing its praises. It then seemed as if the qualities it possessed were ideal for calming the motor excitement of the insane. It was believed to be without danger, as very

large doses had been taken suicidally or by misadventure without any more harm than unconsciousness lasting a day or two. As it was insoluble in ordinary media, it was tasteless, and it could be thus given to resistive patients without their knowledge. This property also made its action less evanescent than that of the other sedatives in use, and this was an advantage in the treatment of chronic excitement. Finally, by skilful dosage, one was able to exercise almost any degree of sedative effect, from the production of slight lethargy to almost complete paralysis. It was possible to tone down the restlessness of the simple maniac so mildly as to make life endurable to others living in the same apartment with him without any discomfort to himself. On the other hand, it was possible to paralyse voluntary movement so completely that the most excited patient became motionless and lay in a semi-stuporose state in bed, with little more than power to breathe and to swallow. If opium be entitled to the name of "the gift of God" in the eyes of orientals, from its power over pain and sensory disorder, eighteen years ago it seemed as just to apply this designation to sulphonol, by virtue of its action on motor excitement.

The next period in its history was one of disillusionment. Further experience of its action taught us that there were disadvantages and dangers associated with its employment which had not been suspected at first. Among the lesser evils following its use were conditions of paresis, local or general, with ataxia in some persons, while in others a temporary state of mental enfeeblement simulating dementia was induced. Gastric and intestinal disturbances, sickness and diarrhoea were also of fairly common occurrence. More serious results sometimes followed from the cumulative action of the drug or from large doses in certain persons, for it was found that after the drug had been given continuously for several days, or in doses above 60 gr. in a day, patients would suddenly faint and collapse, or fall into a comatose state, with a clammy, cyanosed skin and feeble pulse. Very few of these cases ended fatally, for after being in a more or less unconscious state for a day or two, taking very little nourishment, they would have waking moments of more and more frequent occurrence and of longer duration, and would gradually work off all the effects of the drug. These disadvantages which I have so far mentioned

were not usually fatal, but there yet remains to be mentioned the most serious danger of all—the occurrence of hæmatoporphyrinuria. When this condition becomes established it is very often, though not invariably, followed by the death of the patient. In some persons, after the continuous administration of sulphonal for two or three weeks, this pigment may appear in such quantities as to give the urine a reddish tinge, a port-wine colour, or even the deep purple of claret. This coloration is due to a breaking-up of the blood-pigment and its excretion in the urine. When present in a visible quantity, it is often accompanied by rheumatic pains, nervous phenomena, sickness, and symptoms of collapse, but these phenomena may gradually develop and be present for a few days before the hæmatoporphyrin is seen in the urine. At this period, the motor excitement for which the sulphonal is being given may disappear, and thus it has frequently happened that sulphonal had entirely ceased to be administered for a few days before the hæmatoporphyrinuria had been discovered. This adds to the gravity of the symptom, as it is possibly not always a premonition of coming danger, but evidence that a dangerous condition has fully developed. Another feature which added to the dangers of the drug was the fact that while hæmatoporphyrinuria usually developed after a continued course of sulphonal, in some cases it is said to have come on after several moderate doses.

After these experiences, there came a third period in the history of sulphonal, and it fell under the suspicion of being a dangerous drug. In spite of its many and most useful properties, its employment was thereafter given up more or less entirely by many of those who had hailed its introduction with thankfulness, and who had previously used it extensively in their practices. There are at least ten medical superintendents of public asylums in Great Britain who, on account of these dangers, never use sulphonal at all, and in some of these asylums it is not kept in the dispensary. In a larger number of asylums, the drug is used very seldom, and then only in small doses and for short periods, and it is withheld from recent cases in which there is a hope of recovery. In some of these asylums, the diminution in the use of the drug is not wholly due to ideas of its danger, but in part to the discovery of other synthetic drugs, such as trional and veronal, which

have displaced it in favour, and to the fact that the employment of sedatives generally in acute cases of insanity is less in vogue than it formerly was.

It would now appear that after passing through these three periods of appreciation, disillusionment, and distrust, sulphonal has been partially rehabilitated by the majority of asylum superintendents. They employ it regularly as a sedative in cases of motor excitement, and regard it as no more dangerous than other sedatives *when administered with the precautions that experience has taught to be necessary*. These results of a favourable nature are certainly due to the full and universal recognition of the element of danger. Unpleasant and, perhaps, alarming symptoms do still occasionally arise, but fatal accidents seldom occur, if precautions are taken in the method of administering the drug, if the symptoms of the patients undergoing treatment by it are carefully observed by the medical officers, and if it be not prescribed in those cases in which its use is contra-indicated.

Dangers and Precautions.

What dangers exist in the use of sulphonal, and what precautions require to be taken will now be described, but before doing so I take the opportunity of thanking nearly one hundred medical superintendents of asylums who have supplied me with information on these points in response to my inquiries. I am greatly indebted to an article on "Sulphonal Poisoning," by Dr. G. Lovell Gulland (*Scottish Med. and Surg. Journ.*, 1899), and also to Mr. W. Mackenzie, of the Royal Dispensary, Edinburgh.

(1) Insolubility and Intestinal Accumulation.

In the first place, much depends on the fact that sulphonal is not readily soluble. If given undissolved it may remain a long time in the alimentary tract in an unaltered condition, and in a fatal case reported to me it was thus found at the *post-mortem* examination on the mucous surface of the large intestine. A physical condition which accentuates this insolubility is coarseness of grain; and the fact that sulphonal is now sold as a finer powder than when it was first introduced may

partially explain the less frequent occurrences of fatal poisonings at the present day. Insolubility also accounts for the delayed action of sulphonal, and is probably the explanation of those cases in which it is said that sulphonal has little or no effect. In these cases, owing to the slowness with which sedative results are obtained, larger and more frequent doses may be administered under the belief that enough had not at first been prescribed, or that the patient was peculiarly unsusceptible to the action of the drug. In such cases, owing to the accumulation of sulphonal in the intestinal tract, poisoning may readily be produced, and another condition which favours its occurrence by increasing the danger of accumulation is the presence of constipation. It will be perceived, in any case in which several or all of these conditions are combined, how readily acute poisoning with symptoms of cardiac syncope and sudden nervous collapse might occur from the simultaneous absorption during two or three days of sulphonal which lay in enormous amount in the alimentary tract from the œsophagus to the rectum.

It is fortunately possible to avoid the dangers which have been mentioned by means of two simple precautions. The first is that sulphonal should be administered as far as possible in the dissolved state. Its action is then speedier and more uniform; one knows the exact quantity of the drug that is producing the effects, and there is no danger of it accumulating in the intestine, as it may do when given as a powder. Roughly speaking, we are informed that only 1 gr. of sulphonal will dissolve in about 1 oz. of cold water, but that 30 gr. will dissolve in 1 oz. of boiling water. It is more important to know that at the internal temperature of the body (say 100° F.), to which all hot liquids drunk must in time fall, less than 2 gr. remain in solution (one part in 282.5). To administer 20 gr. of sulphonal in solution it is necessary to drink at least half-a-pint of a hot beverage, and there is a choice of vehicles in which this may be done. On the one hand, there is hot milk, which not only supplies nourishment, but as sulphonal is soluble in oils, it supplies an additional solvent in the butter fat. On the other hand, sulphonal may be given dissolved in hot whisky toddy, and this medium may prove acceptable where the former has been refused. Sulphonal is fairly soluble in cold alcohol (1 part in 50), and very soluble in boiling alcohol,

but in diluted alcohol at the temperature of the body its solubility is very much diminished. A solution of sulphonol in cold water is almost tasteless, but in hot and stronger solutions a bitter taste develops.

In many of the English asylums sulphonol is prescribed suspended in mucilage, and while this mode of administration is not so good as a solution, it undoubtedly has the advantage of convenience, and it is not so objectionable as when administered in powder form. Equal parts of sulphonol, powdered gum arabic and sugar may be prescribed with eight to twelve parts of distilled water, and it may be kept prepared in this form ready for use.

It is difficult to say if the sulphonol supplied by one firm is better than that of another; that supplied by Bayer is much used. It is undoubtedly an advantage to get an article which is in a finely pulverised condition, and nothing can be worse than administering it in tabloid form.

The second precaution is that the movement of the bowels of every patient receiving sulphonol should be most carefully attended to every day. It is almost certain that half the deaths that have been recorded from sulphonol poisoning—the result of accumulation in the intestines—would never have taken place had the patients received opening medicine two or three times a week. In every case of actual sulphonol poisoning also a strong purgative should be immediately given to wash out of the system all unabsorbed sulphonol lying in the bowels.

(2) *Accumulation in Blood and Renal Irritation.*

In the second place sulphonol is excreted very slowly by the kidneys; it tends, therefore, to accumulate in the blood; and it also acts as a renal irritant. If more than a certain amount be absorbed daily, it accumulates within the system even in the case of perfectly healthy persons, and if only a few doses be taken it is found that unchanged sulphonol is secreted in the urine for three days after its administration has been stopped.

This is no doubt the explanation of the prolonged action of sulphonol and of the well-known fact that if it be given for insomnia one night its beneficent effects are observed on the duration of the second night's sleep as well.

Nephritis has been produced experimentally in animals by sulphonal, and in many of the fatal cases of poisoning similar changes have been found in the kidneys. During life in these cases there is a diminution in the quantity of urine excreted, with the presence of albumen and tube-casts.

Among the precautions to be always adopted previous to the administration of sulphonal is an examination of the urine of the patient. If kidney disease is found the drug should be avoided, as in such cases the danger of acute poisoning from accumulation within the system owing to defective excretion is great. If kidney disease be not found, and if sulphonal be therefore used, it is desirable during the whole period of its administration to keep a record of the amount of urine passed daily and to examine it periodically for albumen and tube-casts. By the adoption of this precaution one of the greatest dangers of sulphonal will be safely guarded against, for it is believed that some of the cases of apparent acute poisoning have been undoubtedly cases of uræmia and uræmic coma, the result of acute nephritis, masked by symptoms produced by the presence of the drug. In cases of acute poisoning it is therefore doubly desirable to make the kidneys act freely to excrete the drug and to get rid of waste products, and "Neisser saved his case where 1,500 grains had been taken in a single dose by giving large enemata of warm water, frequently repeated, which produced free diuresis."

In order to stimulate the action of the kidneys, and thus prevent accumulation in the blood during the administration of the drug, it is the custom of some to give as diuretics the citrate and acetate of potash and soda. It would be wise in all cases to give a large and fixed quantity of fluid daily to those patients getting the drug, and to keep a record of this, together with the amount of urine passed daily.

(3) *Hæmatoporphyrinuria.*

In the third place, sulphonal occasionally acts on the colouring matter of the blood and produces a condition known as hæmatoporphyrinuria. The explanation of the causation of this symptom in sulphonal poisoning is not known, and it has been found impossible to produce it experimentally at will. When it does occur it is almost always confined to cases in

which sulphonah has been given for a considerable time, so it is usually considered to be the result of prolonged action of the drug by accumulation in the blood, but this is not, however, invariably the case.

The precautions which have to be taken to avoid the development of this symptom, apart from those important measures which have been already mentioned, are of a twofold nature, dealing with the dosage in relation to time and to quantity. Sulphonah should never be continuously administered over a long period without a break ; there is a difficulty, however, in fixing a hard and fast rule for the duration of the period of administration and of the break. Some recommend its administration for three days in succession and follow this with a break of one day. An objection to this method is the fact that it probably takes three days to eliminate the sulphonah from the system. On the other hand, the plan of giving it for three days and then to cease its administration for the next three is possibly too discontinuous an arrangement in chronic cases of excitement, but it is theoretically sound. A working compromise is attained by giving it continuously for not more than six days in succession and then stopping its use for three or four days. Dr. Alexander, however, records a death after giving 30 gr. daily for seven days only in a woman, who had often received the same treatment previously for recurrent excitement.

The next question is the quantity, and it is the opinion of many that 60 gr. is the maximum amount that should be administered in one day. If the drug be given daily for several days this is excessive, and the maximum daily dose should then certainly not exceed 40 gr. in the case of a man and 30 gr. in the case of a woman. In the opinion of many competent judges these doses should each be reduced by 10 gr.

(4) *Idiosyncrasy.*

Even in small doses sulphonah has been found to produce dangerous symptoms in certain persons according to the experience of Dr. MacDowall and others. Dr. Urquhart observed the death with hæmatoporphyrinuria of a patient who, previous to admission, is stated to have received only

two doses of 15 gr. on one day. As it is impossible to predict the cases in which such an idiosyncrasy exists, it is a wise precaution to commence the administration of this drug by giving in the first instance a small dose, say, of 10 gr. only.

In obtaining the effects of sulphonal, the *lex parsimoniæ* is a principle of action to be more closely adhered to than in the case of almost any other drug, and one means of reducing the dose is to combine it with other sedatives. Trional is sometimes prescribed along with it for this purpose, but this seems a doubtful advantage. Though more soluble than sulphonal, and therefore less likely to accumulate in the intestine, in other respects it has the very same dangers as sulphonal, and is believed in addition to act injuriously on nerve-cells. Bromide of potassium, however, may with advantage be combined with sulphonal for the purpose of reducing the dose of the latter drug.

As the amount of sulphonal administered and the period of administration is a matter of so great importance, it is useful to keep a daily record of these facts in a manner that can be seen at a glance. It should also be quite out of the power of the nurses in charge of a patient to give the drug without direct medical orders or surreptitiously. Judging by my own experience I have some doubts of the accuracy of the reports of those instances in which very small quantities of this drug are stated to have been followed by serious results, and believe that possibly more was given than was ordered in some of these cases.

Treatment of Hæmatoporphyrinuria.

"Hæmatoporphyrin, or iron-free hæmatin, is derived from hæmoglobin when it is acted on by acids in the absence of oxygen. Hæmochromogen is first formed, which then loses its iron and becomes converted into hæmatoporphyrin." This chemical reaction suggests the advisability of administering an alkaline bicarbonate in combination with sulphonal, and this is sometimes done. It is also useful to know that when hæmatoporphyrin has actually appeared in the urine the administration of alkalies will check its production, and that it will return if the alkalies be stopped too soon.

The presence of hæmatoporphyrin in the urine is indicated by a reddish tinge, and it is necessary to be on the constant

outlook for its appearance when sulphonah is being administered, as well as to record the quantity of urine secreted, and to examine occasionally for the presence of albumen. As this symptom is one of such serious omen, in all institutions where sulphonah is used the urine should be examined spectroscopically for the presence of this substance, so that its discovery should be made as soon as possible. If the diagnosis be made early, and the drug be stopped, and suitable treatment, such as purgation, diuresis, and the administration of alkalies be applied, the great majority of cases will recover. There are other cases, however, no doubt those in which the changes are more acute and of longer duration, which die in spite of all that is done for them.

Contra-indications.

The above are the most important precautions to be taken should sulphonah be administered, but its employment is contra-indicated in certain disordered states, some of which have been mentioned. It should not be given to persons suffering from albuminuria and kidney disease, nor to persons with chronic constipation or melancholics with sluggish action of the bowels, unless this has been previously attended to. It is also contra-indicated in persons with stomach or bowel disorder and diseases of the liver, as it frequently causes sickness and diarrhoea, and changes have been found in the liver in fatal cases. It is contra-indicated for the above reasons in cases of chronic alcoholism. In persons with heart disease, should acute poisoning with symptoms of collapse unfortunately occur, the result would probably be fatal. It should not be given to persons suffering from anæmia, whether primary or of secondary origin, as in septicæmia, nor to any person in a weak or prostrate condition. By most it is regarded as unsuitable for the aged, but it is said to be very useful in states of senile excitement in small doses of not more than 10 gr. Certain people are said to be extremely susceptible to the action of sulphonah, but unfortunately there is no means of recognising those with this idiosyncrasy. It is thought by some that stout persons above middle age are susceptible. It is, however, an undoubted fact that sulphonah is more dangerous to women than to men, and fatal accidents are ten times more common in the former than

in the latter. It is possible that this is due to the greater frequency of habitual constipation in women than in men; on the other hand, it may be due to some sexual difference, as it is alleged to be specially dangerous to women during the period of menstruation (Alexander).

A Dangerous Drug.

There is no other sedative in use, the employment of which, in ordinary medicinal doses, must be accompanied by so many precautions, and which is so beset by various dangers as sulphonal. Except in skilled and careful hands it must therefore be regarded as a dangerous drug, and it should not be prescribed unless the patient is to be under medical observation during its administration. Even in medical hands, death has resulted from its use in a large number of cases, and I have obtained a note of at least twenty-five cases, few, however, being of recent occurrence, from those who have replied to my inquiries. It is, moreover, absolutely certain that the true death-roll is very much greater, as both the acute form of poisoning by sudden collapse and the more chronic form with hæmatoporphyria may be mistaken for other conditions if sulphonal be not suspected. In the first case of chronic poisoning which I had an opportunity of observing, one of the earliest in this country, the symptoms were so vague that an eminent consulting physician was called in to diagnose the condition; but the correct diagnosis was not made till some weeks after death, when a report was made by MacMunn of the pigment found in a specimen of urine sent to him for examination. I have also known of two cases of sudden collapse and of semi-consciousness, the result of acute poisoning, in neither of which sulphonal was suspected of being the cause, because the symptoms developed with such rapidity, and the diagnosis of the condition ultimately lay between a cardiac or a cerebral disorder till its true nature was discovered.

Uncertainty in its effects, or the existence of persons who are specially susceptible to it, are also serious objections to the usefulness of any drug. It is not comforting to know that a drug may be safely administered to ninety-nine persons out of one hundred if it acts dangerously on the hundredth, and no means exist for discovering who this individual may be. On

the ground of this uncertainty the employment of sulphonal has been condemned by at least one authority on therapeutics (F. D. Boyd).

In contrast with these dangerous symptoms, and even deaths from ordinary doses, it is known that very large single doses have often been taken by mistake or otherwise and been recovered from. Patients have also been known to take sulphonal in full doses (90 gr. per day) continuously for a period of many weeks without serious results, and others have taken it regularly for many years without unpleasant symptoms, or even any disturbance to the general health or nutrition of the body. I have been informed (R. M. Ronaldson) of a lady, æt. 77, who has all her life been a sufferer from insomnia, who has for the last twenty years taken sulphonal regularly every night. During most of this time the dose was from 20–40 gr. ; during part it was higher ; but for several years it has been reduced to 15 gr. It is taken in hot milk. Except for a difficulty in walking the old lady is remarkably well, and enjoys good health, and does not appear to have suffered in any way from the prolonged use of the drug.

In conclusion, there now appears to be a sufficient volume of evidence from physicians competent to judge, who, from their habit of using the drug daily in their practices, have had ample opportunities of watching its effects, which indicates that by eliminating certain cases, by exercising the precautions which have been mentioned, and by watching its effects closely, sulphonal may be continuously administered with comparative safety. Its discontinuous or occasional use in single doses of moderate size, if idiosyncrasy has been excluded, does not appear to be accompanied by any danger.

DISCUSSION,

At the Meeting of the Scottish Division held in Edinburgh on November 18th, 1910.

Dr. L. C. BRUCE: There are some of the pharmacological actions of sulphonal which have not been mentioned to-day. These are, that the drug, even in small doses, diminishes the appetite and interferes with metabolism ; this latter action is seen in the early stages of administration in the form of diminished excretion of the nitrogenous waste products in the urine ; and in long-continued administration in failure of nutrition and loss of body-weight. The exhibition of sulphonal in doses of 30 gr. and over, produces a well-marked increase of the polymorphonuclear leucocytes. Lastly, it is a drug which does not alter arterial tension—a negative quality which limits its activity as a hypnotic. In its therapeutic applications, sulphonal is contra-indicated in melancholic states on account of its actions in interfering with the excretion of urea and diminishing the appetite, but it is useful

in maniacal excitement of the chronic and recurrent type, not only because of its motor-depressant effect, but on account of the leucocytosis which it induces. In chronic maniacal conditions, its use may actually increase the body-weight in the patient by conserving the energy and diminishing the excessive output of nitrogenous waste products. As a hypnotic, it is of no value in sleeplessness associated with high arterial tension, but in sleeplessness associated with motor restlessness, such as one finds in the earlier stages of general paralysis, it is valuable. The dangers attending the use of the drug are not greater than those attending the use of an active therapeutic agent. The occurrence of hæmatoporphyrinuria is rare. I have seen one slight case in the last eleven years. If the urine is watched during the administration, the drug discontinued, and a laxative given upon the slightest appearance of pigmentation, the dangers of this complication are slight. Attacks of vomiting and nausea occurring during the exhibition of sulphonal are due, I believe, in every case to the mechanical irritation of a coarse-grained form of the drug, and for this reason crystalline sulphonal should be avoided. In elderly persons, I have seen sulphonal produce attacks of local paresis even when given in doses not exceeding 15 gr. per day. I have the records of three cases of facial paresis, two cases of paralysis of the right hand, and one of aphasia, all occurring in elderly persons taking sulphonal, and in all of whom the paralysis disappeared when the drug was discontinued, and a laxative administered. The action of sulphonal is much enhanced by giving it in conjunction with the bromides. In my experience, when it is necessary to give sedatives over a considerable period, sulphonal is a safer drug to use than the bromides, chloral hydrate and opium. It does not lower the general resistive powers of the body in the way the bromides do, and immunity to its action is rarely established, as it is in the cases of chloral and opium.

Dr. CLOUSTON, after expressing his opinion of the great practical value of Dr. Robertson's paper and of the personal experiences of the drug as related by the various speakers, referred particularly to the practical and scientific importance of Dr. Lewis Bruce's physiological observations as being both corrective and explanatory of their clinical experiences. He said he, too, had passed through the phase of big doses too often repeated, careless pharmacological preparations, hæmatoporphyrinuria, localised paresis, disordered reflexes, alarming comatose states, and the fear that the drug might put off or prevent recovery. As the result of greater experience and more scientific use he was now satisfied that the drug was a safe and useful hypnotic sedative and motor depressant in certain forms of mental disease. It might be used to take the edge off troublesome excitement, to lessen noisiness and restlessness, and to cut short attacks of mania. It had the effect in some recurrent cases of preventing the tendency to relapse. In both curable and incurable mental disease, he had found it a good medicine to use under the right conditions. But there were certain forms of insanity it did not suit. These were mentally depressive conditions and toxic cases. In various forms and degrees of excitement with exaltation, in general paralysis, and especially in senile cases, he had found it most useful. Many a patient labouring under senile excitement he had saved from being sent to asylums by means of its mildly sedative effects. As to the modes of its use and its dose, he always used it as a finely ground powder, and in hot milk as a medium. He now never began with more than from five to seven grains to a dose, seldom went beyond ten grains, and never gave over twenty grains at a time. He always combined it with the bromide of potassium or sodium in doses of from fifteen to forty grains. These accentuated and prolonged all its effects, and enabled him to restrict the doses. After a few doses he omitted it for one night or so, in that way often getting the benefit of its cumulative effects. He rang the changes by alternating with trional and veronal, these, too, being always conjoined with the bromides. He often gave a drachm or two of paraldehyde an hour after the sulphonal, and bromides had been given. Its effects needed watching and study, like all the powerful sedatives and hypnotics. Too much of it should not be ordered at a time, and left with the nurses in charge. Temptation should not be put in their way. Every nurse, especially hospital trained nurses, wanted one to order too much sedatives in troublesome or sleepless patients. The most questionable use to which he had ever put sulphonal was giving it in large doses frequently repeated to cases of general paralysis in the acute, noisy, impulsive, and dangerous stage, and keeping them dazed and sleepy

for a week or so. Very often when the medicine was stopped they were found to have passed into the second stage of the disease, and remained quiet and manageable, but more paretic. "I have had no bad results with sulphonal for the past ten years or more. I have not observed any delay in the recovery of curable cases. I have had occasional patients in whom it seemed to cut short an attack with the aid of warm baths. Many of my patients gained weight steadily during its administration—a sure proof that it was not doing harm. By use of regular laxatives its tendency to cause furring of the tongue was obviated. When it did not have the hypnotic or sedative effect I expected, I stopped it and tried other medicines instead of increasing the doses beyond twenty grains. During its administration I tell the nurses to observe the urine carefully and report the least tendency to reddening. I can recollect two cases when this occurred in a slight degree, but it ceased, and the urine became normal in a few days after stopping the medicine, the patient not apparently suffering any injury."

Dr. HOTCHKIS referred to his experience of sulphonal at Gartnavel, more especially with reference to two cases of hæmatoporphyrinuria which came under his notice, both of which proved fatal. He published an account of one of them, while the other was reported by Dr. Oswald, and he laid special emphasis upon the fact that in both cases a slight amount of albumen was present in the urine, and that the danger of the disintegrating effect of sulphonal was thereby greatly increased. He looked upon sulphonal as a dangerous drug, but he considered its use quite justifiable as long as it was used with caution, and mostly in chronic and incurable cases.

Dr. JOHNSTONE referred to his paper on sulphonal, which appeared in the *Journal of Mental Science* for 1892. He had given a great deal of sulphonal at one time, without any ill-effects; but, in view of the experience of others, he had used it much more sparingly and cautiously for some years. He considered it a very valuable hypnotic and sedative in acute and curable cases and in recurrent cases; it was also very useful in cases of excitement and restlessness in which recovery was not expected. He gave it in single doses of 40 gr., at intervals of at least forty-eight hours, testing each case with a dose of 10 to 30 gr. before administering the full dose. He pointed out the importance of keeping the bowels open; constipation appeared to add seriously to the risks of sulphonal poisoning.

Dr. McRAE: Although well aware of its defects, I do not consider that we are to regard sulphonal as a dangerous drug, if judiciously employed. I believe it, on the contrary, to be a valuable and as yet indispensable sedative. It may be admitted that it is chiefly used to eliminate disturbing and dangerous excitement in the ordinary asylum ward, or again in private practice, to subdue distressing restlessness and noise, and so permit of home treatment, particularly in senile cases. We know it is of service in warding off expected attacks, or in cutting short excited states in cases of recurrent insanity. Some of us here have even been taught the advantages of its continuous administration to hasten the processes of consecutive dementia in incurable and dangerous chronic cases. Sulphonal is distinctly variable in its action. In spite of being given in a dissolved condition it may be quite inert. In other cases again a decided tolerance is exhibited, and I have known patients repeatedly have 30 to 60 gr. of sulphonal daily for many weeks and even months without developing untoward symptoms. There are cases, however, where it does seem to be unsuitable. I would allude especially to those decrepit patients whose stupidity is aggravated by the drug without the excitement being sufficiently subdued, and who consequently are very liable to fall and otherwise injure themselves in their restlessness. And there are also those cases of excitement with moral obliquity, which resist the effect of the sulphonal intentionally, and become more troublesome, behaving with a spiteful abandon. In these two kinds of cases the nursing staff infinitely prefer to look after the patient without the use of sulphonal. On account of its lowering effect on vitality, it is contra-indicated in cases of marked feebleness, and more especially in septic conditions. Trional, I have reason to believe, in certain cases requires even more care in administration than sulphonal, and I recall the case of an old woman who died two days after sustaining a fracture of the femur during maniacal restlessness. She had been given two thirty-grain doses of trional. At the autopsy all the serous membranes were found to be in state of intense purpura like hyperæmia. A few doses of sulphonal (15 to 30 gr.) are of great benefit in acute

mental excitement, and I have often seen cases admitted in a state of acute delirium much improved after a single dose of 30 gr. One case in particular, I remember, was that of a marine engineer, who had been in a state of wild and violent delirium for weeks at sea. On admission to the asylum he was given by the œsophageal tube castor oil, and 30 gr. of sulphonal in half a pint of warm custard, and placed in the padded room. He slept the greater part of the night, and next morning was quiet and perfectly lucid. He made a rapid and uninterrupted recovery. Sulphonal certainly is a drug which requires to be carefully administered in order to avoid its toxic effects, but it is a valuable sedative which has been of immense service in the treatment of mental disease. When we consider the enormous quantity that is consumed in asylums and in private throughout the country, it is remarkable how few cases of hæmatoporphyrinuria are known to occur.

Dr. URQUHART said that he had a considerable experience in the use of sulphonal. When it was introduced there was general agreement that it was efficient and harmless, but it soon became evident that it had special disadvantages and dangers. He remembered a remark of Sir William Gairdner's that sulphonal was not for him, since it was proved to have a disintegrating effect upon the constituents of the blood, and certainly it would be an anomaly if such a powerful drug had no deleterious effects. He did not know if the sulphur atom was to be blamed in sulphonal, trional, and tetronal; but experience had led him to prefer veronal, which he had not found to cause erythema or vomiting, as had sometimes been reported. However, cases of veronal poisoning with fatal results had been published, but none of them, so far as he was aware, had suffered from hæmatoporphyrinuria. No doubt all these dangerous drugs should be scheduled as poisons, and the public should be generally warned. It was surprising to find how many people, especially ladies, dosed themselves with lethal medicines—carrying them about and prescribing them with the greatest freedom. He had been unfortunate in having had one case of sulphonal poisoning, followed by hæmatoporphyrinuria and death, and asked if a well-marked case of that kind did recover. A clinical note on the case referred to was published in the *Journal* for April, 1898, and was remarkable in respect of the small dose of sulphonal (30 gr.) said to have been taken. It might be that the purity of the drug is an important factor in the prevention of evil after-effects; but, considering how freely sulphonal had been used, perhaps the danger mainly arose from the repeated use of large doses. No doubt care in the method of administration had been so improved upon that untoward results had been minimised, but care in the use of hypnotics of all kinds is requisite and necessary.

Dr. ROBERTSON, in reply, stated that he had to thank those who had taken part in so interesting a discussion, and he also desired to express his thanks to the superintendents who had sent replies to his inquiries. At the date of speaking he had received replies from sixty-three superintendents, and of these, forty-one, or two-thirds, used sulphonal regularly, and some of them used it greatly. Twenty-two superintendents, or one-third of the total number, used it rarely, or did not use it at all. Almost all of those who had spoken that afternoon had spoken with the recognition of the care with which sulphonal had to be administered. Dr. McRae had mentioned the fact of its great use in certain cases, but his subsequent statement that he did not employ it in cases of recoverable insanity indicated that he also recognised the disadvantages connected with the use of this drug. Of all those who had spoken perhaps Dr. Bruce was the one who had spoken most favourably of its employment, but even he, in his text-book, has referred to it as a dangerous drug. Dr. Robertson further stated that he had been one of those who had practically given up the use of sulphonal after his early experience of the dangers that attended its use. He was inclined to think now, from a perusal of the replies he had received, that this had been a mistake. By the exercise of greater care it had become possible to employ the drug and not run great risks, for those superintendents who had continued the use of sulphonal had apparently evolved methods which enabled it to be used with comparative safety. Dr. Robertson stated that the case which had had most influence in determining him to give up the employment of sulphonal was that of a young woman suffering from acute mania. He had only prescribed three doses of 30 gr. in this case, and this patient eventually died of chronic poisoning with hæmatoporphyrinuria. He came to the

conclusion that a drug which might be followed with such fatal consequences after three moderate doses was not one which he was justified in using. He had, however, recently taken the opportunity of revising his notes of this case, and he finds that on two occasions within two months before the patient's death she suffered from symptoms of sudden collapse in which she was thought to be dying. The cause of this collapse was undiagnosed, and remained a mystery of which no solution was obtained. He has now come to the conclusion that the sudden collapse on these two occasions was due to acute sulphonal poisoning, as he has heard of other cases of an exactly similar character since then. He therefore thinks there is very good reason for believing that the nurses in charge of the patient had been administering to her surreptitiously, and on their own account, large doses of sulphonal. The case, therefore, was probably not one in which chronic poisoning with hæmatoporphyrinuria developed after the administration of 90 gr. only, and the grounds on which he largely abstained from the use of sulphonal in his own practice since then were imaginary. There has been in the past much difference of opinion and a great difference of practice among superintendents in the use of this drug, and it is hoped that this discussion has largely reconciled these conflicting views.

A Note on the Determination of the Opsonic Indices of the Blood in Insane Persons. By ALICE BABINGTON, B.A., M.B., Ch.B., Royal Asylum, Edinburgh.

IN the following communication, it has been attempted to make a comparison between the opsonic indices obtained from the blood of the insane and those from the blood of normal individuals, and to draw the conclusion that in the case of those patients suffering from an abnormal mental condition we have a slight but nevertheless perceptible lowering of these opsonic indices. As only fifty-two cases have been examined, it is doubtful if one would be justified in drawing any definite conclusion from such small data.

In each case, the opsonic indices were ascertained for the following organisms: *Bacillus coli communis*, *Streptococcus faecalis*, *Staphylococcus aureus*, and *Bacillus paratyphoid*. The reasons for selecting these special types of organisms were: Firstly, that as *Bacillus coli communis* and *Streptococcus faecalis* normally exist in the intestine, they might reasonably be considered as a probable source of auto-intoxication; secondly, *Staphylococcus aureus* was chosen because of the frequent occurrence of boils and acne in the insane, and of the recognised association of this organism with such conditions; thirdly, *Bacillus paratyphoid* was selected more or less as a control, being an organism which is usually rare as a saprophyte in normal people.

Technique.

The method employed in this investigation for the determination of opsonic indices was that advocated by Wright, and is briefly as follows: The undiluted and unheated blood-serum of the patient was tested against a similar serum of a healthy control. The bacillary emulsions were made from young agar cultures of the several organisms of not more than sixteen hours' growth, and were suspended in a solution of 0.1 *per cent.* sodium chloride. These cultures were centrifuged to prevent the formation of clumps, and were made of a certain thickness, so that the organisms found in a count of 100 leucocytes of the normal control numbered between 300 and 400. The blood-corpuscles were first well washed and centrifuged twice in normal saline. The upper layers of the leucocytes and red blood-corpuscles were then pipetted off, and having been well mixed in a small glass tube, were ready for use. On the capillary pipette used for mixing the blood-corpuscles, the bacillary emulsion, and the serum, a unit volume was marked off, and this unit volume was used throughout the estimation. Three unit volumes of the blood-corpuscles, each volume separated from the next by a small air-bubble, are drawn into the pipette, then a volume of the bacillary emulsion, and finally, two volumes of the blood-serum to be tested, each volume being carefully separated from one another by an air-bubble. These volumes are all carefully expressed on to a clean glass slide, and thoroughly mixed by alternately sucking the mixture into the pipette and squeezing it out again upon the glass slide. The mixture is finally drawn into the pipette, the end of which is sealed off in the flame, and the pipette is placed in the incubator for fifteen minutes at 37° C. At the end of that time the sealed end is filed off, and the contents of the pipette are blown out on to a clean glass slide and very carefully mixed. The mixture is then spread on to three clean slides, and fairly thin blood-films are prepared, dried and stained by Jenner's method. In ascertaining the opsonic indices for both patient and control to each organism 100 leucocytes were always counted, and any slide which showed clumping of leucocytes or organisms was discarded as likely to give rise to inaccuracies in the estimation.

Of the fifty-two cases examined I have differentiated the

types of insanity with their respective opsonic indices in the following table.

Table showing the Average Opsonic Index of Four Organisms in Forty-seven Insane Persons and Twenty Normal Persons.

	<i>Bacillus coli communis.</i>	<i>Streptococcus faecalis.</i>	<i>Staphylococcus aureus.</i>	<i>Bacillus paratyphoid.</i>	Collective result.
Normal average, 20 cases.	1.095	1.051	.998	1.077	1.056
Insane average, 47 cases . . . . .	.768	.837	.865	.935	.851
Acute insanities, 10 cases . . . . .	.607	.694	.645	.833	.544
Chronic delusional insanities (in healthy adults), 10 cases . . . . .	.916	.944	.937	.981	.944
Recovered patients, 5 cases . . . . .	.976	1.244	.934	.986	1.035
Epileptic insanity, 11 cases . . . . .	.845	.71	1.172	.922	.912
Dementia præcox, 6 cases . . . . .	.766	.841	.798	.965	.842
General paralysis of insane, 6 cases . . . . .	.809	.966	.781	1.07	.906
Chronic insanities in senile persons, 4 cases . . . . .	.669	.869	.858	.971	.841

From these figures it will be seen that on the whole there is a distinct lowering of the opsonic indices for all insanities to these organisms. This general lowering is much more marked in those patients who are acutely insane, and is less marked in the chronic insanities in healthy adults. The recoveries or convalescents, unfortunately only five in number, show the nearest approach to the normal average.

C. J. Shaw,⁽¹⁾ in his observations on opsonic indices and vaccine treatment with tuberculin, concluded that the opsonic indices of insane patients to the organism tubercle bacillus, *Bacillus coli communis*, *Staphylococcus aureus*, and *Micrococcus rheumaticus* are generally lower than in the sane, and that the amount of variation in the indices is greater; he also concluded that the acutely mentally afflicted are more liable to organismal infection than the more chronic insane, but that the latter have less resisting power than sane, healthy individuals.

Conclusions.

(1) The average index of insane patients is definitely below the normal average, the variations being most marked in *Bacillus coli communis*.

(2) In acute insanities, it is markedly below the normal average, and this includes the index for the *Bacillus paratyphoid*.

(3) The average index is only slightly below the normal in chronic delusional insanities in healthy adults.

(4) In recovered patients, the index approximates most nearly to the normal average, or is above it in some cases.

(5) In epileptic insanity (numbering ten cases), the index to *Staphylococcus aureus* is above normal. In only two of these cases was any skin lesion apparent. Is this the result of an increased immunity, the patient being in a condition of active immunisation to this organism as the result of acne, which is of frequent occurrence in this type of insanity?

(6) Except in acute insanities, the index for *Bacillus paratyphoid* is almost normal, and also shows small variation as compared with the normal. Can this be explained by the possibility that the opsonising power of the blood-serum has not been lowered because the presence of the organism is unusual?

(7) The fact that the paratyphoid index is not so much lowered as the indices for the other three organisms, suggests that the lowered index in the latter three is possibly due to exhaustion owing to the continuous auto-intoxication from these three common organisms, which might be accounted for by the almost invariable presence of constipation or alimentary troubles in the insane. In the case of *Bacillus paratyphoid*, the exhaustion has not taken place, as this organism does not usually exist in the body.

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The Production of Indigo in the Human Organism.(¹)

By R. V. STANFORD, M.Sc., Ph.D., Research Chemist,
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IT has long been known that in certain circumstances the dye-stuff indigo, or substances very nearly related to it, may appear as products of animal metabolism, and this fact has not failed to attract attention from physiologists, chemists and medical men. Indigo, in fact, possesses a "fatal gift of beauty," which has always made it a focus of interest. Of no substance

is the history easier to trace. In the earliest times it was obtained from the plant *Isatis tinctoria*, and served as dye and pigment under the name of woad, being no doubt a striking feature at meetings of the wild Silures in this locality some 2,000 years ago. More recently, during the past half century, the problem of the production of synthetic indigo has absorbed enormous sums of money, and the energies of an army of chemists, and the successful competition which it now wages with the vegetable product forms one of the best instances of the return eventually obtained by those who cast their bread upon the waters, financing research in the hope of a return which they cannot definitely foresee.

Indigo of animal origin has not yet been the subject of any noteworthy investigation from the commercial or technical standpoint, probably because its formation occurs usually in such extremely minute quantities. Nevertheless, its production is of so much interest from a physiological point of view that according to Maillard the number of papers which has appeared on the subject totals several thousands. Most of them have had for their object the elucidation of the mode of formation of indigoid colours in the organism or the discovery of some connection between their appearance and bodily disease. This side of the subject will be more fully dealt with later on, but it may be mentioned that of late years particularly an attempt has been made by various observers to detect some relation between the elimination of indigo in the urine and the mental state of the insane. The results which have been arrived at, however, are so conflicting, and are supported in many cases by such scanty evidence, that it seemed worth while to examine afresh the whole question of urinary indigo, and to see whether it were not possible to determine with certainty whether the excretion of the substance has any connection with mental disease. The present paper gives a preliminary account of some of the results already obtained in the course of this investigation.

Quantitative Methods.

In a case of this kind, it is clear that the value of the conclusions arrived at depends, not so much on the acumen employed in drawing these conclusions, as on the accuracy and reliability of the experimental results themselves. If

these are open to criticism, then the conclusions, no matter how interesting, fall to pieces of themselves. It was recognised, therefore, that the first stage of the work must be a critical examination of the methods which had been used for the estimation of the indigo obtainable from a urine by the observers who had made statements regarding its physiological significance.

The first observation that a blue colouring matter sometimes occurs in urine appears to have been made by Bellini in 1698. The conditions leading to its formation were more thoroughly investigated about the middle of the nineteenth century, that is to say, at the time when indigo and other dyestuffs were beginning to attract the notice of synthetic organic chemistry. It was found that the production of indigo took place most readily when the urine was treated with (1) an acid, and (2) an oxidising agent in small quantity. Then, to make the coloration more evident, it was found advisable to dissolve out the dark, precipitated indigo with a suitable solvent, such as chloroform. The detailed history of this test has so often been set forth that it would be superfluous to enter into it here. It needs merely to be stated that all imaginable variations of the actual substances used have been tried. For the acid required, all the common acids of all possible strengths seem to have been employed, and at various temperatures. As a result it appears that the most favourable method is acidification of the urine with an equal volume of ordinary, concentrated, pure hydrochloric acid at the ordinary temperature.

A very large number of different oxidising agents has been used. Among them may be mentioned bleaching powder, potassium permanganate, chlorine water, bromine water, potassium chlorate, sodium persulphate, ammonium persulphate, ferric chloride, and hydrogen peroxide. There is no sort of unanimity as to which of these is the most suitable for the purpose. The indigo which is developed from urine is rarely of sufficient purity even to seem pure blue to the eye. Indirubin (indigo red) and other indigoid colouring matters are always formed at the same time, and it is asserted that some of these oxidisers are more prone to yield the latter than are others, though there do not appear to be any reliable data on this point. Another circumstance which affects the choice of

an oxidising agent is the danger of oxidising the indigo-producing substance too far, so that isatin is formed instead of indigo. There is no doubt that the more vigorous oxidisers in the list given above do cause loss of indigo in this way; bleaching powder is one of these. In any case an excess of the oxidiser is to be avoided, as is known not only from the experience of workers in this field, but also from the quantitative experiments of Bloxam on the mode of obtaining the maximum yield of indigo from plants.

In the experiments here described, a dilute (10 vols. *per cent.*) solution of hydrogen peroxide has been employed as a rule. The advantages of this substance are that (1) it introduces nothing into the solution except the oxygen which is wanted; (2) it can be obtained in a high state of purity; (3) in the great dilution at which it is employed there seems little risk of its causing loss of indigo by over-oxidation. In testing many hundreds of urines no indication of over-oxidation has ever been observed. The ideal oxidiser for the purpose would be ozone, and it is proposed to make experiments with that substance as soon as a sufficiently exact method of estimating the indigo formed has been developed.

In the production of indigo from urine as already described, there remains only one factor capable of variation, namely, the solvent used to extract the indigo. Chloroform is, however, the only solvent not miscible with water which will dissolve the precipitated indigo at the ordinary temperature, and for this reason almost all investigators have made use of it for this purpose. It will be shown later on that the use of this solvent introduces a great source of error, which it does not seem possible to eliminate.

The treatment of a suitable urine with concentrated hydrochloric acid, a few drops of dilute hydrogen peroxide or other oxidiser, and a small quantity of chloroform yields a blue chloroform solution, the colour of which is mainly due to indigo. This may be termed the qualitative test for urinary indigo.

In the course of the last forty years, very many attempts have been made to elaborate from this rough test an exact quantitative method. With one exception all the proposals which have been made involve the production of the indigo by some modification of the method already described, the dye-

stuff being then estimated either gravimetrically, volumetrically, or colorimetrically.

A gravimetric method was suggested by Jaffe (1) in 1870, but the process does not seem to have been adopted by any other investigator.

The most important volumetric methods are those associated with the names of Obermayer, Wang, Maillard, and Ellinger.

According to Obermayer's method (2), a suitable volume of the urine is deprived of its colouring matters by the addition of one tenth of its volume of basic lead acetate, and the filtrate is treated with its own volume of concentrated hydrochloric acid, in which 0.1–0.2 *per cent.* of ferric chloride has previously been dissolved. The precipitated indigo is then dissolved out with chloroform, the chloroform is distilled off on the water-bath, and the residue is warmed with 45 *per cent.* alcohol, which removes some reddish-brown substance. The residue thus purified is sulphonated by means of 5 c.c. of concentrated sulphuric acid, and warmed on the water-bath to complete the sulphonation. The solution of indigo sulphonic acids so obtained is diluted with water and titrated with an extremely dilute solution of potassium permanganate.

Wang (3), in the same year, published an account of a similar method, but he did not attempt to purify the residue after distilling off the chloroform in any way. Later (4), however, he introduced a "modified method," in which the residue was extracted with a mixture of alcohol, ether, and water, with the object of effecting its purification as in Obermayer's method. Wang's procedure seems to be the only one which has ever been tested by large numbers of estimations. Unfortunately for one's confidence in its reliability, however, Wang himself executed a number of parallel determinations by his "original method" and by his "modified method," and found random differences between the results yielded by them, amounting to anything up to 50 *per cent.* of the indigo apparently present, so that it is clear that both versions of the method cannot be correct, whilst there is nothing to show which of the two is to be preferred.

Ellinger (5), in 1903, adopted yet another modification of the Wang-Obermayer process, in that he proposed washing the residue after removal of the chloroform with hot water only, the object being to remove any isatin formed at the same time.

He also attempted to control the accuracy of the method by testing it on solutions of pure potassium indoxylsulphate, which has been supposed to be the urinary constituent yielding indigo. From these pure "indican" solutions he could obtain only 84–90 *per cent.* of the theoretical amount of indigo. This shows the method to be insufficient, even supposing that it yields the same proportion of the possible indigo from a urine as it does from the pure aqueous solution of potassium indoxylsulphate, which is by no means certain, and is in any case not proved by Ellinger's experiments.

In 1903, L. C. Maillard (6) suggested a process differing somewhat from that of Wang and Obermayer, the changes being prompted by a desire to avoid certain sources of error present in the latter, in particular the risk of loss of indigo by over-oxidation, and the alteration in the indigoid colouring matters of the chloroform solution, which occurs very evidently when the chloroform is being distilled off on the water-bath. The urine, after precipitation with basic lead acetate, is treated with an equal volume of concentrated hydrochloric acid and a drop or two of hydrogen peroxide as oxidiser. The extraction with chloroform is carried out with small quantities of this solvent at a time, and hydrogen peroxide is added drop by drop as long as any further development of blue dye-stuff is observed. The united chloroform solutions are filtered, washed five times with water, four times with 0.1 *per cent.* sodium hydroxide, three times again with water, and finally filtered. The chloroform is distilled off, and the volumetric estimation with permanganate performed, much in the same way as in the other methods. This procedure has the fatal defect that the twelve extractions and two filtrations recommended cannot be effected without loss of substance, especially in view of the fact that solid matter containing indigo is frequently deposited from the chloroform solution during the operation.

The methods which have been described are open to the following serious objections: (1) The production of the indigoid colouring matters from the substances which yield them in the urine may not be quantitative—indeed, there are the strongest reasons for believing that it is not. (2) The colouring matter obtained, although it is usually predominantly blue in colour, is never pure indigotin, but, like all other indigo from natural sources, contains red and brown dye-stuffs. (3) It

has been shown conclusively that it is impossible to purify such indigo completely by the aid of solvents alone (7), and therefore the indigo which is sulphonated and treated with permanganate in the above-mentioned processes contains impurities which most probably act on permanganate, and so render the titration ambiguous. (4) Even pure indigotin does not react with permanganate in any fixed, quantitative relation unless certain conditions as to degree of sulphonation, concentration of solutions, etc., are fulfilled, and these are not fulfilled in the case of any of these methods.

Colorimetric methods for the estimation of indigo have been devised by Salkowski (8) in 1876, Krauss (9) and Adrian (10) in 1894, and others. Numerous difficulties prevent the attainment of any accuracy by this means. The colour of the chloroform solutions is never a pure blue, owing to the admixture of indirubin and the other colouring matters already mentioned, and it is impossible to compare colorimetrically two solutions unless they have exactly the same tint. A further difficulty arises from the fact that to make a colorimetric comparison it is necessary to have a standard solution of the pure substance with which to effect the comparison. Now, the preparation of chemically pure indigo has only been accomplished in the last year or two, so that the earlier workers with colorimetric methods could not have had the substance at their disposal. On the contrary, the substances which have been used under the name of "pure indigo" for colorimetric work have in some cases been definitely proved to be exceedingly impure. Even the pure synthetic indigo of the Badische Anilin- und Sodafabrik, which has often served as a means of comparison, is stated to contain only 90 *per cent.* of indigotin.

I have myself prepared chemically pure indigo according to the method given by Bloxam (*loc. cit.*), and have proved by analysis that it was pure, and have attempted to use it as a colorimetric standard. It then turned out that pure indigo, like many other organic substances, has a much lower solubility than the impure substance. Chloroform, for instance, which will dissolve sufficient, though not large, quantities of impure indigo such as is precipitated from urine, dissolves even in the heat only minute proportions of the pure compound, so that the saturated solution at the ordinary temperature contains

only one part of indigo in several hundred thousand, and is much too pale in colour to be compared colorimetrically with anything.

A method essentially different from any of the foregoing is that of Bouma (11), who has applied to the analysis of urinary indigo a reaction first employed by Beyerinck. Indoxyl, derivatives of which probably form the indigo-yielding substances in urine as they do in plants, reacts with isatin in aqueous solution, yielding indirubin (indigo-red) which is isomeric with indigotin. The indirubin formed may be extracted with chloroform, and estimated volumetrically or colorimetrically in the same way as indigotin obtained by the other methods. Bouma maintains that the estimation of indoxyl by this means is more nearly quantitative than its oxidation to indigotin. The indirubin obtained, however, is not pure. It usually contains some indigotin, as well as the brown colouring matters which always accompany crude indigotin and indirubin. The objections to the ordinary indigo-blue processes which have been mentioned seem therefore to apply also to the isatin method. From Bouma's work, however, and more precisely from Bloxam's researches on the action of isatin on plant indoxyl, it appears very likely that the reaction itself is more nearly quantitative than the oxidation processes.

Indigo Elimination and Mental Disease.

Perhaps the logical outcome of the preceding criticism of the methods for the estimation of urinary indigo would be a suspension of judgment in regard to the variations in the excretion of the substance, until a method had been worked out by means of which that excretion could be measured with an experimental error less than the differences which might be expected to be met with.

In practice, however, the elaboration of a satisfactory method was found to be fraught with some rather considerable difficulties, which have not yet entirely been surmounted, and it became evident that some of them might be better understood if one had beforehand some more or less approximate knowledge on this very question of the variation of the indigo elimination among the insane. Accordingly a considerable

number of experiments has been carried out, and these seem to throw some light on the clinical aspect of the subject as well as to elucidate some of the difficulties just mentioned. Before the description of the results in question it will be proper to refer to some of the work which has been done on the connection between urinary indigo and mental disease, and also to indicate the experimental method which has been employed in the present instance.

I. H. Coriat (12), in a paper devoted to the subject, sums up the previous work as follows: "Analysing the data of various mental and nervous disorders, several things are found to be fairly constant. Indican was found in excess in various depressive conditions by Rossi, Richardson, and Berkley, and in the greater number of cases of Pilcz, who has shown in several cases the disappearance of the excess of indican coincidentally with the passage into exaltation, and inversely its gradually increasing quantities as mania again goes into depression. Some of his cases of mania are also associated with indicanuria. The findings of other observers can be referred to intestinal putrefaction."

Coriat resumes his own results thus: "Increased indican is found to be a manifestation of katatonic and epileptic stupor, akinetic forms of dementia præcox and general paralysis, being met with also in cases of alcoholic depression and in the depressed phases of the manic-depressive psychosis. This large elimination of indican is also found during the stuporous period of six cases, during the inactive period of eight cases, and also as Case 15 went into depression. In seven cases, on the contrary, there are many distinct fluctuations from high to low, often abrupt and inexplicable, though these latter can be grouped in almost the same class as the first." On the other hand, he finds decreased amounts in cases of hyperkinesis. These are the conclusions drawn by Coriat himself, but he records his results in curves which show very considerable fluctuations, to which no regularity can be assigned. Moreover, his observations were apparently irregular, not even daily in character.

The general conclusion of Coriat, namely, that there tends to be an excess of indigo secreted in akinetic states, is supported by the researches of Bruce (13), Pini and Benini (14), and especially of Pardo (15), and some observers have laid

weight on the diminution of the indigo excretion as a sign of the mental improvement of the patient. One might almost discern a general tendency to connect an excessive secretion of indigo with this type of mental state just as it is generally thought that a connection exists between excess of indigo and intestinal stagnation.

With a view to examining that statement, daily tests were made of the urine of a number of patients during several months.

The method adopted was as follows : The urine was treated with about one-tenth of its volume of basic lead acetate and filtered. To 10 c.c. of the filtrate an equal volume of concentrated hydrochloric acid was added, then 1 c.c. of chloroform, and the whole shaken and allowed to stand for one to three minutes. A record was made of the coloration (if any) of the chloroform, and hydrogen peroxide was then added, drop by drop, with constant shaking, as long as any increase of the coloration was to be noticed. One drop, or at most two, usually sufficed. After fifteen minutes the coloration of the chloroform was again noted. The coloration was merely estimated by eye as being 0, trace, double trace, present, present in excess, and + (present in quite unusual amount). The extremely rough nature of this test will be evident, but it was sufficient for the object in view, because it is only sought to draw conclusions from *large* variations. It is clear that a difference between a urine containing no indigo whatever and one yielding a deep blue chloroform solution can be recognised, however inaccurate the method. Further, it may be pointed out that the great majority of those who have investigated urinary indigo from the point of view of mental disease have employed methods, qualitative tests, of very much the same character, and it may even be urged that that has been wise, for the fallacies of such methods are obvious, whilst those of the more elaborate pseudo-quantitative methods are hidden in the appearance of exactness resulting from an accumulation of analytical figures.

The further question arises as to whether merely samples of urine should be tested, or twenty-four hour portions, as is usually the case. Some of the observers previously mentioned have adopted one method, some the other, and in some cases no statement is to be found on the subject. In this connection the important observation was made that the indigo-producing

substance in urine is not permanent. In the course of two or three hours a urine which has previously given a strong reaction will often yield no trace of indigo by any method. This change does not appear to be due to fermentative action, since the disappearance of the reaction may also occur when the urine has been treated with chloroform beforehand. It is more probably connected with the fortuitous presence of substances in the urine with which the indigo producer can react. A similar instability has been observed by Bloxam in the case of indican, the producer of plant indigo, and in view of the probable instability of the substance is not surprising. This fact, which has apparently escaped notice hitherto, at once renders inadmissible the collection of the urine during the whole twenty-four hours, for it is quite uncertain how much of its original indigo would still be obtainable from it when it came to be tested. On the other hand, the examination of the urine immediately it is passed presents difficulties. As a compromise, in these experiments the urine passed by the patient before 9 a.m. was tested at that hour, and any portions obtained later were examined at 3 p.m. The rest of the daily excretion was neglected.

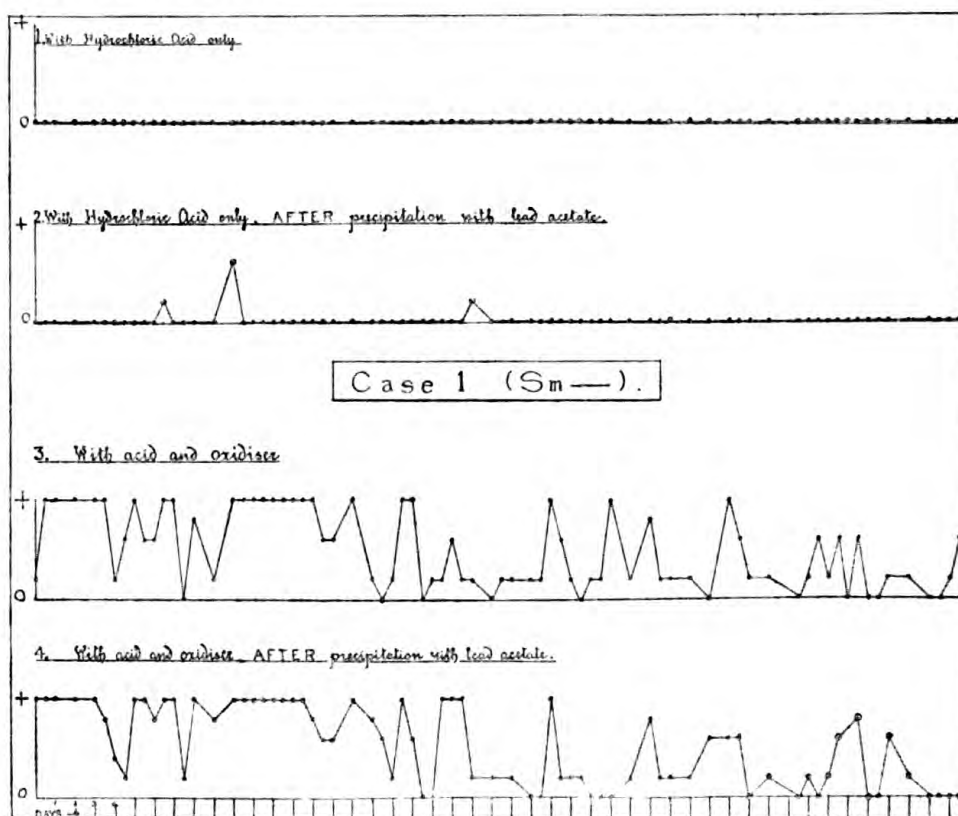
One thousand three hundred and fifty-three samples of urines have been tested by this method, the excretion of any individual case being followed daily for several weeks at a time. The results are indicated by the accompanying curves, which show the daily variation in the intensity of the indigo reaction of the urine of four patients during a period of about forty days.

In the curves, the time in days is plotted horizontally and the indigo reaction (measured as above described) vertically. In the case of each patient the two upper curves refer to the behaviour of the urine (1) towards hydrochloric acid alone, (2) towards hydrochloric acid plus hydrogen peroxide, whilst the two lower curves show its behaviour towards these two reagents respectively after it has been precipitated with basic lead acetate. The four points on the four curves which lie on any vertical straight line refer, therefore, to portions of the same sample of urine treated by these four different methods.

A comparison of the curves establishes the following facts :

(1) The action of hydrochloric acid and air alone cause the development of a coloration in only a few cases, and the colour

is even then only a fraction of what it becomes when an oxidiser is also added. More generally it may be stated that out of the 1,353 samples tested, only 146 (or 10·8 *per cent.*) showed any coloration whatever with hydrochloric acid alone. This is interesting, because L. C. Maillard has declared that in the great majority of cases the addition of an oxidiser is unnecessary in order to produce the full amount of indigo from a urine, and it also has a bearing on the nature of the indigo-producing substances in urine.



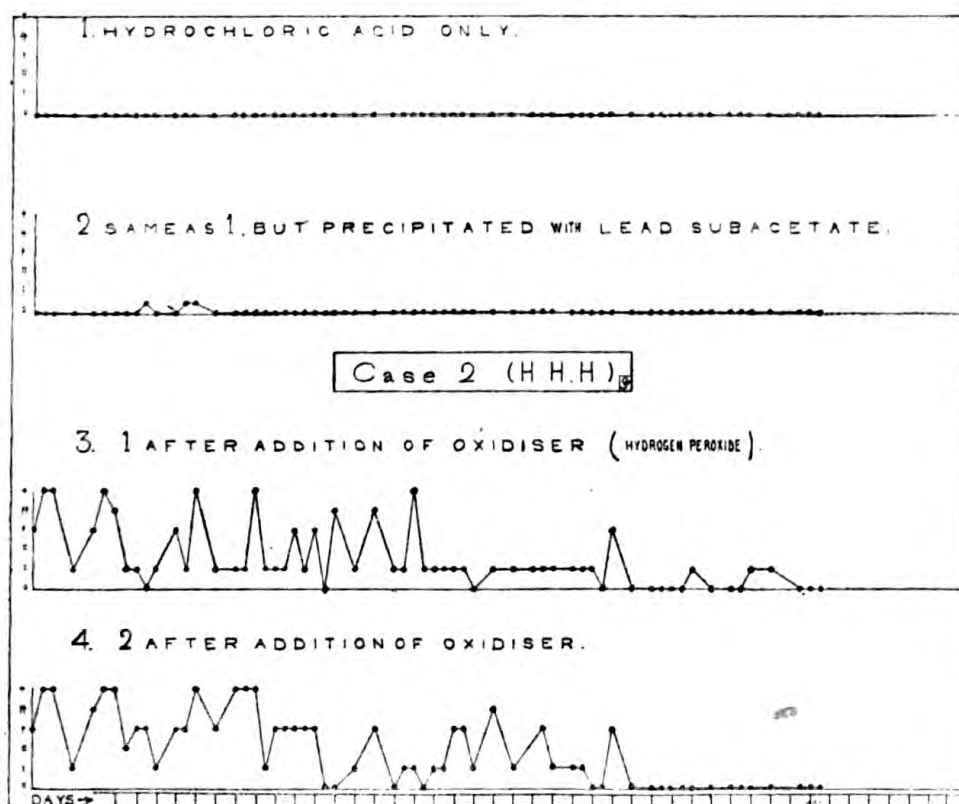
(2) The preliminary precipitation of the urine with basic lead acetate does not usually diminish the amount of the indigo obtained. Of the 1,353 samples only sixty-two show a diminution in the coloration, after precipitation, of more than two steps of the arbitrary scale of estimation. In view of the roughness of the method, no conclusions can be drawn from differences less than this.

(3) The amount of indigo obtainable from the urine of a given patient varies, not only considerably, but also suddenly. Many instances can be noticed in which the indigo disappears

completely in a few hours, sometimes to reappear again shortly afterwards, and sometimes not.

The mental condition of the patients is indicated by the following notes, for which I am indebted to my colleague, Dr. E. Barton White.

CASE 1.—Sm—, æt. about 45, seaman. Duration of attack unknown. Since December, 1909, has been in a state of stupor, devoid of any muscular movement, although since



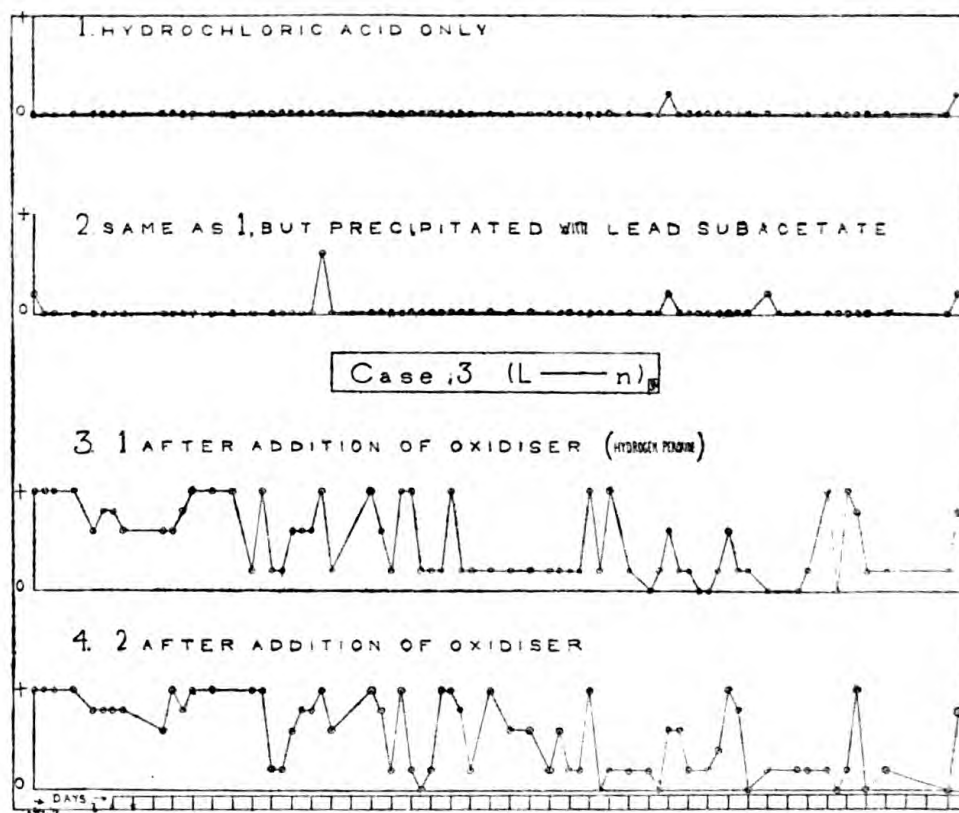
April, 1910, he has fed himself. His condition during September and October, 1910 (the period of the experiment), showed no variation whatever.

CASE 2.—H. H. H—, æt. 40, hairdresser; married. Admitted to the hospital on July 5th, 1910, suffering from recent melancholia brought on by alcoholic excess. He had delusions of persecution, was suspicious and emotional, and showed lack of self-control. He was regarded as suicidal. He soon improved, but has had mild attacks of melancholia since, the last being at the beginning of August. During September

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(the period of investigation) he was working in the gardens, was quiet and industrious, but somewhat depressed and emotional. His mental state showed no marked alteration during this period.

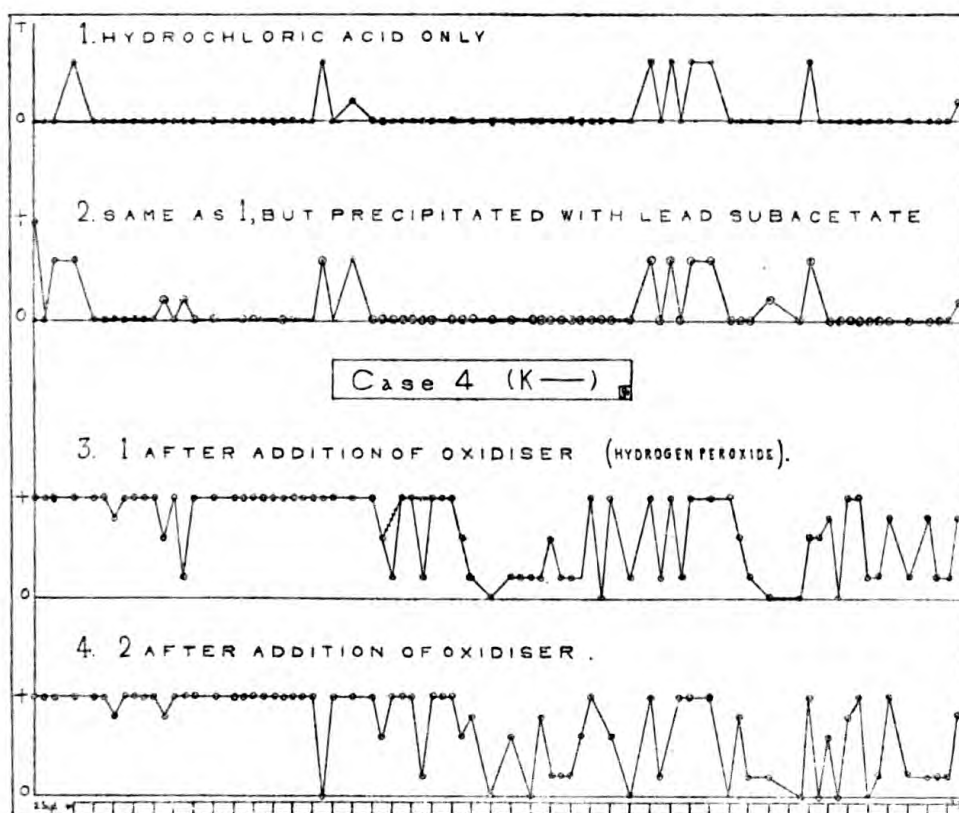
CASE 3.—L—, æt. 40, seaman. Admitted May 10th, 1910, suffering from melancholia, and showing signs of bulbar paralysis. He is listless, apathetic, and lachrymose. When



questioned he may reply in a monosyllable, but when pressed he bursts suddenly into childish sobbing. During the past six months his physical condition has steadily improved, but in his mental state no alteration has been observed other than a tendency to incipient dementia.

CASE 4.—K—, æt. 25. Has been insane for more than three years, and is now in the final demented stage of *dementia præcox*. He is inactive, shows total lack of initiative, and has been in this state without any remission or perceptible alteration for more than twelve months, including the period covered by the experiments.

These curves show, therefore, a capricious variation in the indigo excretion in all four cases, in spite of the fact that all four patients are in the most stable, invariant, akinetic condition that can well be imagined. There are many instances in which, one sample having been found to contain no indigo, the next showed the unusually large amount indicated by + on the arbitrary scale adopted. Such changes are obviously outside



the limits of experimental error, even on the very rough method employed.

The above results are open to criticism, however, on various grounds. The scale of measurement is of a very subjective kind; the urine samples were examined some time after they were passed, although it has been shown that the indigo-forming substance tends to disappear on standing; the values obtained (and plotted on the curves) indicate only the concentration of the indigoid substances in the samples examined, for no account is taken of the volume of the urine, and the whole twenty-four hours' quantities are not dealt with. These facts do not weaken

the experimental basis for the conclusions arrived at in the preceding paragraph, but they render desirable a more careful investigation.

An effort was therefore made to follow the variation in the indigo excretion more exactly. To render the estimation of the coloration of the chloroform somewhat more precise, it was compared in the Duboscq colorimeter with a standard Fehling solution, as suggested by Folin. No great accuracy is attainable in this way, because the solutions have not the same colour, but it is preferable to mere eye estimation. To avoid the disappearance of the indigo-producing substance from the urine special arrangements were made for testing every sample of urine as soon as it was passed. In this way all the urine of each twenty-four hours was examined, so that the results refer to twenty-four-hour portions. In order to obtain comparable figures for the different days, however, it was necessary to adopt some method of reducing the experimental data so that the volume of the separate samples could be taken into account. This was effected as follows :

Suppose that a c.c. of urine yield b c.c. of a chloroform solution, of which c mm. are equivalent in the colorimeter to d mm. of the standard Fehling solution, and let the volume of the sample of urine be v c.c.

Then, assuming that the concentration of the indigo solution is inversely proportional to the thickness of layer equivalent to the standard Fehling solution, it follows that

$$\text{Indigo from } a \text{ c.c. of urine } \propto \frac{d}{c} \times b,$$

$$\text{or total indigo in sample} = \frac{d}{c} \times b \times \frac{v}{a} \times \text{constant.}$$

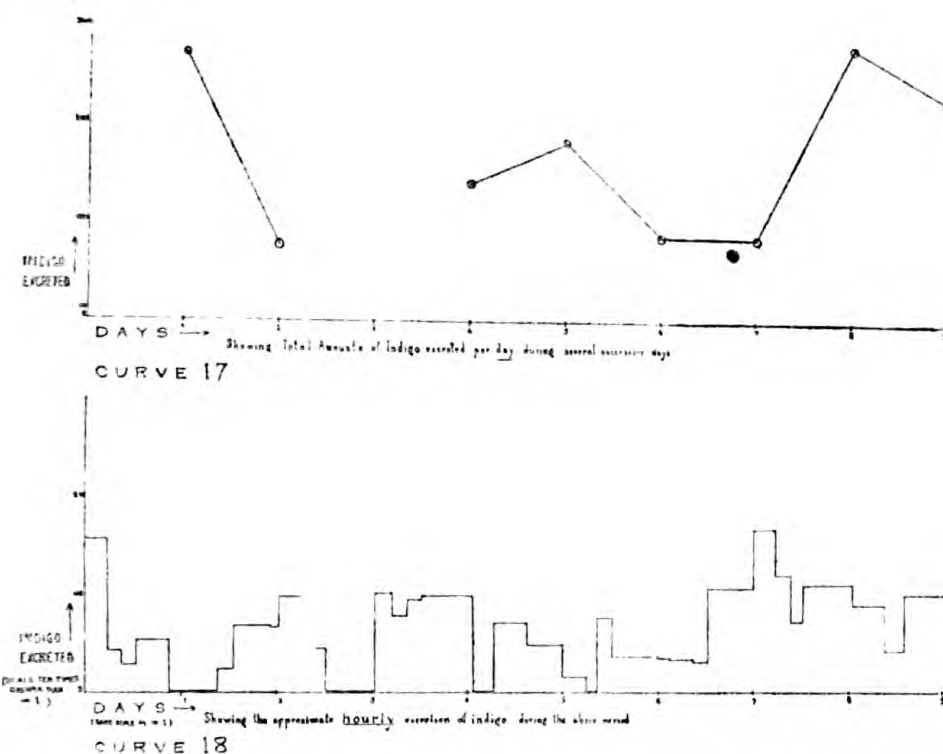
But the same thickness of standard Fehling solution (10 mm.) and the same volume of urine (20 c.c.) were employed for the test in all cases, so that

$$\text{Total indigo in sample} = \frac{b}{c} \times v \times \text{constant.}$$

That is, by multiplying the number of cubic centimetres of chloroform solution by the number of cubic centimetres of urine in the sample, and dividing by the number of millimetres of the chloroform solution which is equivalent to the 10 mm. of standard Fehling solution, a number is obtained

which is proportional to the amount of indigo present. By adding together the numbers so calculated for all the samples through the twenty-four hours, a number is obtained which is proportional, on the same scale, to the total indigo excretion during that period. The results obtained in the case of patient A. W. D— are shown in curves 17 and 18.

In curve 17, the time in days is plotted horizontally, and the total amounts of indigo excreted per day are plotted vertically.



In curve 18 the same experimental results are somewhat differently expressed. Suppose that a sample of urine be obtained at 6 p.m., and another at 10 p.m. Then, if the amount of indigo found in the second case be divided by the number of hours in the interval (four), the result will indicate the average excretion of indigo per hour during the time from 6 p.m. to 10 p.m. Curve 18 shows the hourly indigo excretion thus calculated from the experimental data responsible for curve 17. The time is on the same scale, but the vertical scale (amounts of indigo) is magnified ten times as compared with that of curve 17.

The numerical results on which the curves are based are given in the accompanying table :

TABLE SHOWING EXCRETION OF INDIGO BY PATIENT
A. W. D—. (SEE CURVES 17 AND 18.)

The twenty-four-hour periods commence at 9 a.m.

Date.	Time passed.	Total indigo in sample.	Total for twenty-four hours.	Average indigo excretion per hour.
1911.				
Feb. 2nd	10.20 a.m.	1350	2697	—
	2.15 p.m.	625		156
	6.0 p.m.	161		43
	9.40 p.m.	111		29
	5.55 a.m.	450		54
Feb. 3rd	9.55 a.m.	0	766	0
	2.8 p.m.	0		0
	6.2 p.m.	0		0
	9.50 p.m.	100		24
	7.30 a.m.	666		68
Feb. 4th	9.45 a.m.	150	(?)	66
	3.10 p.m.	533		97
	6.24 p.m.	(lost)		—
	9.35 p.m.	137		44
Feb. 5th	9.45 a.m.	0	1391	0
	2.15 p.m.	750		100
	6.11 p.m.	311		78
	9.35 p.m.	330		94
Feb. 6th	10.20 a.m.	1250	1812	98
	3.38 p.m.	0		0
	11.50 p.m.	562		70
Feb. 7th	9.10 a.m.	456	856	48
	3.0 p.m.	100		16
	5.40 p.m.	0		0
	9.35 p.m.	300		75

Date.	Time passed.	Total indigo in sample.	Total for twenty-four hours.	Average indigo excretion per hour.
1911.				
Feb. 8th	9.15 a.m.	437		36
	11.55 a.m.	90		34
	5.40 p.m.	200		33
	9.36 p.m.	120		30
			847	
Feb. 9th	9.12 a.m.	1250		104
	2.24 p.m.	817		163
	6.14 p.m.	475		118
	9.35 p.m.	236		71
			2778	
Feb. 10th	10.1 a.m.	1333		107
	5.55 p.m.	700		87
	11.3 p.m.	208		41
			2241	
Feb. 11th	9.40 a.m.	1052		98

The individual tests were carried out as follows: 40 c.c. of the urine were treated with 4 c.c. of basic lead acetate (the *liq. plumbi subacetatis*, British Pharmacopœia) and filtered. When the filtrate contained an excess of lead the precipitation was repeated on a further portion of the urine with a smaller quantity of the acetate: 22 c.c. of the filtrate were treated with one drop of pure hydrogen peroxide solution (10 vols. *per cent.*, freshly prepared) and with 22 c.c. of pure concentrated hydrochloric acid: 10 c.c. of chloroform were then added, and the whole well shaken. The shaking was continued, if necessary with further portions of chloroform, and at intervals more hydrogen peroxide was added up to a maximum of eight drops. The chloroform solution was compared in the Duboscq colorimeter with a solution containing Fehling solution A 1 c.c., Fehling solution B 1 c.c., water 4 c.c. The solutions have not the same colour, so that the comparison is by no means exact. The difference of tint is less in daylight than by artificial light, even when the electric arc light is employed, so that the solutions obtained during the night were kept until morning, being stored in a dark place. The washing with alkali recommended by Maillard (*loc. cit.*) as a means of preventing the

colour from further alteration was not found to be satisfactory, chiefly because some of the indigo is usually precipitated during the process, or on standing.

From the table, or from inspection of the curves, it will be seen that the daily excretion of indigo varies very considerably, and, in fact, making all allowance for the inaccurate character of the method of observation, it seems that these variations exceed the limits of experimental error. This is shown particularly in curve 18, for in many of the samples no indigo whatever could be discovered, whilst in the succeeding portions there was often a large amount. The hourly variation does not seem to be connected with the time of occurrence of meals or sleep, for the samples with no indigo were obtained at almost all times during the twenty-four hours.

Dr. White has kindly furnished me with the following note as to the condition of this patient.

Patient, A. W. D—, æt. 28, clerk. Admitted July 12th, 1910. The attack dated from nine months previously. On admission the patient was confused and restless, wandered aimlessly about and muttering incoherently. He had some depression and delusions of homicide. He has now lost the delusions, but is still inclined to be restless, and his conversation is at times incoherent. During the period covered by the investigation his condition showed no alteration.

From the results recorded in this paper it appears, therefore, that the indigo excretion of individuals whose mental state does not exhibit any perceptible variation shows rapid and considerable changes, for which, at present, no explanation is forthcoming. In view of this fact very extensive and reliable experimental evidence would seem to be necessary in order to prove a connection between the amount of indigo eliminated and the mental state of a patient whose condition did show obvious variation.

(¹) Paper read at the General Meeting of the Medico-Psychological Association at Whitchurch, on February 22nd, 1911.

REFERENCES.

As a very complete bibliography of the extensive literature of urinary indigo and "indican" is given in some of the following publications,

such as those of Ellinger, and especially Wang, only a few of the most important papers are referred to here.

- (1) Jaffe.—*Pfl. Arch.*, iii, 1870, p. 448.
- (2) Obermayer.—*Zeitschr. physiol. Chem.*, xxvi, 1898, p. 427.
- (3) Wang.—*Ibid.*, xxv, 1898, p. 406.
- (4) Wang.—*Om Indicanuri*. Christiania: Jacob Dybwad, 1900, pp. 156 + xvi.
- (5) Ellinger.—*Zeitschr. physiol. Chem.*, xxxviii, 1903, p. 178.
- (6) Maillard.—*L'indoxyle urinaire et les couleurs qui en dérivent*. Paris, Schleicher, 1903, pp. xi + 114.
- (7) Bloxam.—*Journ. Soc. Chem. Industry*, xxv, 1906, p. 735; *Report of Government of India on Research Work in Indigo*, 1908, *passim*.
- (8) Salkowski.—*Virchow's Arch. f. Path. Anat.*, lxviii, 1876, p. 407.
- (9) Krauss.—*Zeitschr. physiol. Chem.*, xviii, 1894, p. 173.
- (10) Adrian.—*Ibid.*, xix, 1894, p. 129.
- (11) Bouma.—*Ibid.*, xxxii, 1901, p. 82.
- (12) Coriat.—*Amer. Journ. of Insanity*, lviii, 1902, p. 635; see also Myers, Fisher and Diefendorf, *ibid.*, lxv, 1909, p. 606.
- (13) Bruce.—*Journal of Mental Science*, lii, 1906, p. 501.
- (14) Pini and Benini.—*Riforma Medica*, 1906, No. 5 (cited by Zanon in brochure, *Sopra mille osservazioni urologiche in alienati ecc.* [from *Manicomio di Udine*]).
- (15) Pardo.—*Riv. sperim. di freniatria*, xxxiii, 1907, p. 275.

DISCUSSION,

At the General Meeting of the Medico-Psychological Association, at Cardiff City Mental Hospital, Whitchurch, on February 22nd, 1911.

Dr. G. H. SAVAGE (who temporarily occupied the chair) thanked the author for his contribution, and remarked that it was a most important but destructive paper, as opposed to the usual constructive one. But it was essential for a good building that it should have a foundation which was trustworthy. And the foundation which had been laid in regard to indican seemed to be quite untrustworthy. It was all very well to say that there was no parallel which could be traced between the indican and the mental symptoms, but he thought such a statement was going rather far in regard to a stuporose case. He thought it was interesting to know that there was no external evidence of the mental changes which were going on, and it was important to recognise that the statements which had hitherto been made about the relationship of the presence of indican to conditions of exhaustion had not been established. He trusted there were some present who could enlighten the meeting on the subject.

Dr. EDWIN GOODALL said that there was no exact knowledge on the subject of the presence of indigo in urine and its significance. Until a method for estimating it quantitatively was worked out it appeared useless to think of correlating the presence of indigo in urine with mental states. Dr. Stanford was engaged upon an attempt to provide such a method.

Observations on Indoxyl in the Urine of Epileptics: A Preliminary Contribution on Epileptic Metabolism.

By LEONARD D. H. BAUGH, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Gartloch Mental Hospital, near Glasgow.

UNDOUBTEDLY in the past, the prominence of the major seizures in epilepsy led to a focussing of attention on the fit itself, while the accompanying phenomena were ignored or received scant attention. More recently the study of the phenomena associated with the seizures has increased our knowledge, and we realise that by epilepsy we refer to a "symptom-complex" (1). With regard to metabolic processes which occur, and which appear to be of importance, very little has been elucidated, although much work has been done on examination of body fluids, etc. With the hope that it may induce others to join in an endeavour to throw some light on these processes, this is presented, as a preliminary contribution from work done here on the study of epileptic metabolism. The paper is devoted mainly to the consideration of the indoxyl voided in the urine. The clinical examination of the urine of epileptics has been carried on since December, 1905. In the paper attention is drawn to brief summaries which show some of the variations in the output of indoxyl, and a modification of Jaffe's test submitted, which, it is considered, makes for greater clinical accuracy.

"Indoxyl" is stated to be an ethereal sulphate formed from the destruction of proteid, and is found in human urine after the infant has been fed with milk. It is generally supposed to arise from the absorbed products of proteid decomposition in the alimentary canal, but it may arise from other sources where proteid destruction is taking place, *e.g.*, gangrene of lung. According to most books, if constipation, etc., is avoided and there is no suppurative process going on in the organism, no excess of indoxyl is found in urine. This statement does not appear to apply to epileptics. As certain investigations made prior to December, 1905, were the genesis of the observations on indoxyl in the urine of epileptics, a brief account of them and of work done between December, 1905, and March, 1906, is inserted.

Findings on indoxyl from various cases.—Confusional insanities examined appeared so definitely to show excess of indoxyl in the urine that it was mentioned as a clinical symptom in 1905 (2). In nineteen cases indoxyl was present in excess in all. Controls did not give anything like these figures, as an old table shows:

Indoxyl Examinations of Twenty-three Cases, May 21st, 1905.

Type of insanity.	Indoxyl reaction.		
	Normal.	Moderate excess.	Marked excess.
Mania-melancholia (6):			
Melancholia predominant	4	2	—
Mania predominant	2	2	—
Seniles (demented)	10	6	2
General paralytics	3	2	—
Imbeciles	2	2	—
Dementia præcox	1	—	—
Epileptic	1	—	1
Totals	23	14	5

The twenty-three controls were placed under bed and dietetic conditions similar to the confusional cases. A further series of controls from the sane in average and poor health was done; they were, with one exception, negative—the solitary exception was the subject of chronic gastric disorder, but was not constipated.

Next, a series of over 120 urines taken from all types of insanity, and from as many sane controls as could be obtained, were each examined more than once between December, 1905, and March, 1906. This led to a statement in Glasgow with regard to indoxyl in urine. It was stated that a persistent excess was present in confusional insanity, and was occasionally found in melancholia; that transient excess was often met with in melancholia and senility. No excess was got from sane controls, imbeciles in good health, maniacal forms of mania-melancholia and delusional insanity. The findings of Townsend (3) in melancholia could not be agreed with, apart from instances in which there was constipation and intestinal fermentation. The persistent excess of indoxyl in confusional cases, while contrary to the findings of Bruce (4),

was in agreement with Easterbrook (5); unlike the cases of the latter it was, however, not limited to those with offensive stools, but was found to persist while purposeless resistiveness was present, even after alimentary tone appeared to be re-established. Bruce's, Easterbrook's, and my cases had been kept on liquids, and all drug treatment, apart from purgative, had been withheld. The association with mental confusion led to examination of urine in epileptics, general paralytics, and primary demented. The difficulties met in these cases were more numerous, as, in addition to the frequent loss of urine, it was harder to arrive at a decision as to the establishment of alimentary tone. This question of alimentary tone seemed so important that only one statement could be made, *viz.*, that in some epileptics, when they appeared to be at their normal, during the inter-paroxysmal period, more indoxyl was present in the urine than was usually considered normal.

The test for indoxyl.—Care in the observance of certain precautions must be taken, *e.g.*, albumen, if present, must be removed by boiling and filtering. The urine should be mixed, not shaken. The test used by me is a modification of Jaffe's test; it was devised because attempts at estimation of the amount of indoxyl present by differences in shades of colour were found to be unsatisfactory. The modified test is based on the chemico-physiological fact that excess of reagent decolorises the indican. It was used conjointly with Jaffe's test for over three months before it was adopted in April, 1906, as the test for permanent use. With practice the detection of the vanishing point of the blue coloration is easily distinguished from the yellowish isatin colour sometimes left. In using this modification one is able to get a statement in figures which is much more definite and expressive than a reference to colour. Further, by always using the same quantities of urine and hydrochloric acid, and a definite strength of freshly prepared bleaching-powder solution, a small calculation enables one to express in figures the total amount of solution needed to obliterate indigo colour from so many ounces of urine. It took some time before this obliteration test (as it will be here referred to) could be standardised. It is considered that in a person under normal conditions, 200–300 drops of a 1–20 solution should obliterate all the indigo colour from a twenty-four-hours' collection of urine. This allows a

wide normal range of variation. To arrive at this conclusion hundreds of examinations were necessary. The variation in indoxyl met with is so marked in epilepsy that the steps of the obliteration test and the care taken to avoid error are now detailed.

Details of obliteration test.—At first metric measures were used, but as urine was collected in imperial measures the latter have been used for convenience. To 6 drms. of urine 6 drms. of HCl is added; then three drops of 1-20 bleaching powder solution from a drop-bottle are put on the side of the measure near the lip. The contents of the measure are next poured into a large tube, chloroform is added, and the tube inverted several times. If the blue, or, as occasionally happens, indigo-red persists, more bleaching powder is added until the colour goes. If there is no colour left after the use of three drops the test is repeated, to find if one or two drops will obliterate the colour. The calculation is simple. For example: if in 6 drms. (the quantity of urine always tested) the obliteration point is 3, and the total amount of urine is 60 oz., we find $\frac{8}{6} \times \frac{3}{1} \times \frac{60}{1} = 240$. Controls done on urines of varying dilution show that the concentration of urine, both as to specific gravity and amount passed, does not introduce appreciable error into the calculation. To get uniformity of light, etc., it has been found convenient to have urine collected from 8 p.m. to 8 p.m., and to regard the collection as of date of termination. This ensures that the test is always done in the same artificial (electric) light, and shortly after the termination of the twenty-four hours. The bleaching-powder solution is shaken each time before use, and the first drop is always discarded. As a control, the "nitric acid in the cold" test for albumen has always been set up; the brownish ring of indoxyl which forms on standing makes a rough but good comparative control over the obliteration indoxyl test if two or three urines are being tested. These nitric acid control tubes are not looked at until the testing for obliteration of indoxyl by bleaching powder has been completed.

The cases examined, and some opinions on epilepsy.—They were mainly taken from those who showed serial manifestations for two reasons: (1) The periods of well-being are more clearly defined and form a good contrast to the changes, mental and physical, associated with the breakdown; (2) the symptoms

evidenced at the serial epochs are more analogous to those of toxic insanity, and tend to support the theories of a toxæmic causative factor advanced by many. In opinions expressed regarding epilepsy there is a gradually increasing tendency to allocate graver epilepsy to the toxic class; if in those cases it cannot be said that toxæmia is causative, it certainly can be said that signs of toxæmia are present. Further, aggravation, if not precipitation of manifestations in so-called idiopathic epilepsy, is suspected to arise from toxæmic factors acting on weak nerve-tissue. Lugaro (6) says that a cerebro-pathic condition acting during infancy may leave a circumscribed lesion, which gives no symptoms until after exposure to the influence of alcohol or of other endogenous or exogenous intoxication, when an epilepsy, erroneously termed idiopathic, is lit up. Krainsky (7) and Haig (8) have worked at the hypo- and hyper-toxicity of epileptic urine; they lay stress on uric acid as a causative factor. Undoubtedly, as stated, the diminution in excretion often occurs, but, as Bouchard's (9) findings regarding its toxicity are different, and he is supported by Sir William Gowers (10) and Dr. Turner (1) (p. 189). I refer you to them. Bouchard (9) drew attention to the toxicity of the colouring constituents of urine, and suggested that to them was due almost one-third of the toxicity.

To return to the cases, in order to arrive at any conclusions from urinary examination, in addition to the ordinary precautions and steps of the test, the observance of the following conditions appeared necessary: (a) The subjects in the inter-paroxysmal periods should be in average health and possess alimentary tone; (b) diet and environment should be similar; all were on diet poor in purin; (c) all the urine of the twenty-four hours should be obtained, often in separate specimens; (d) to follow the case through all its phases, and to get repeats of the cycle, examinations should be done daily over a considerable period of time. In one case of grave serial epilepsy, daily general notes and examination of urine went on for twenty-four weeks; then for thirteen weeks a variation in diet, the effect of constipation, and the re-establishment of alimentary tone were watched; this was followed by nine weeks under a regimen similar to the twenty-four weeks, so that the case was under daily examination for forty-six weeks. A summary of twenty-eight days is submitted from the examinations carried

out during the twenty-four weeks' period. The statement already referred to, *viz.*, that the urine of epileptics during the inter-paroxysmal period contained more indoxyl than was present in normal urine, has been corroborated in nearly all the cases examined, and is well shown in the summary from E. F—.

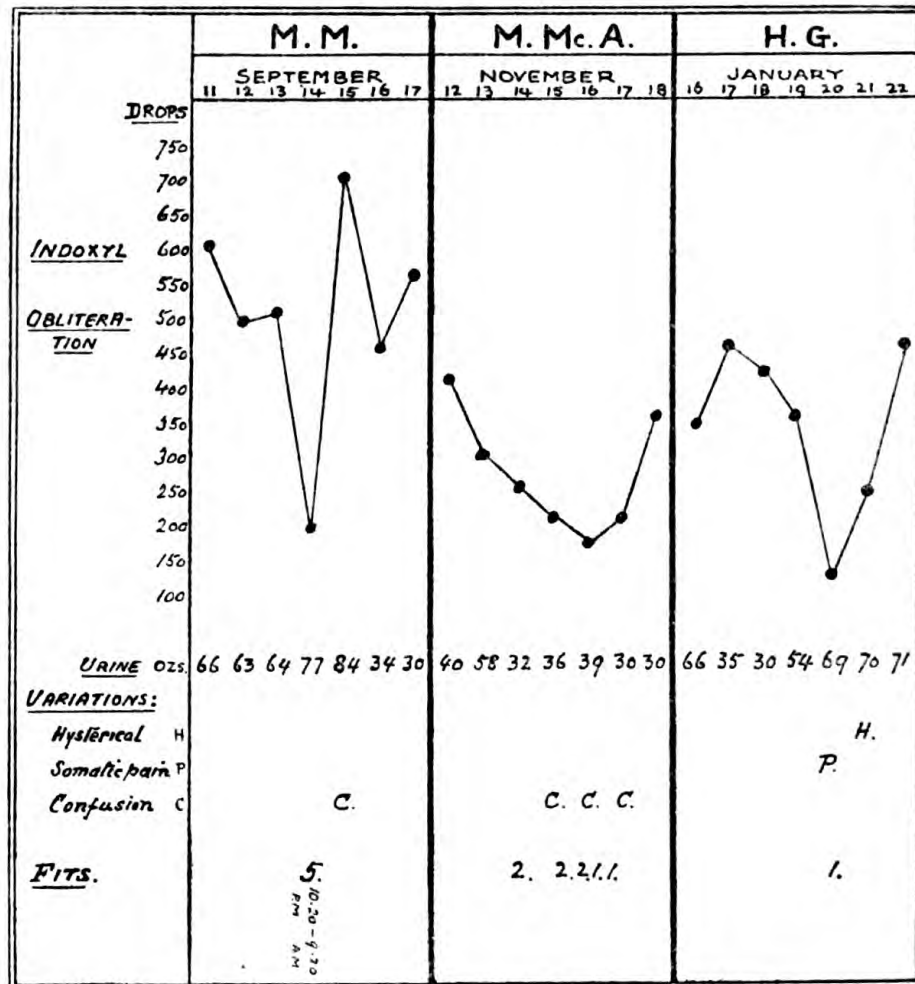
Summary of twenty-eight days from E. F—.—The average amount of urine passed daily was 43·6 oz. The average amount of bleaching powder solution needed to attain the indoxyl obliteration point was 550 drops. A striking feature met with six times in this twenty-eight days, and which has been persistently obtained in this case and in the others, will be described as the "pre-fit drop in indoxyl," for the diminution in the amount of indoxyl usually occurs before fits; it may, however, like other prodromata, only precede an equivalent. On the six days mentioned the indoxyl obliteration point fell below 400—on five occasions it heralded the onset of fits; on the other, after a drop to 384, there was an irritable epileptic equivalent. The lowest "pre-fit indoxyl drop" in the period was to 192. The patient had seemed well all day and went to bed well. After 8 p.m. she complained of abdominal pain and was analgesic to pin-pricks; at 10.30 p.m. a series started; she got hyoscine after she had four fits, and they ceased after the sixth. Hyoscine was always used for this patient as her fits were severe, were not controlled by chloral, and a series if at all long continued left her much prostrated. Sometimes a decrease in the indoxyl was coincident with diminution in amount of urine voided; this is by no means the rule; a very frequent finding is illustrated in table form:

Urine passed.	Indoxyl obliteration.	Contrast.
Night and morning . 24 oz.	320 drops B.P. solution	24 oz.—indoxyl obliteration 320.
1 p.m. . . . 10 oz.	27 " "	} 22 oz.—indoxyl obliteration 59.
7.15 p.m. . . . 12 oz.	32 " "	

Fits started at 7.35 p.m.

After consideration of the table, it is as well to note that within limits the test is not influenced by the time that has elapsed between the voiding of the urine and the testing. The point was repeatedly investigated to exclude possibility of error

on this score. The procedure followed as control was: Urine was tested a few minutes after it was passed, the remainder of the specimen plugged with cotton-wool and set aside; the bleaching powder solution used was also set aside in a blue bottle in the dark. The specimen of urine set aside has been found to give the same obliteration point up to twenty hours



after it had been passed; it gave the reaction both with freshly prepared and the set-aside bleaching powder. The "pre-fit drop" is followed after the fit or fits by a marked increase of indoxyl in the urine. The return to a large output of indoxyl is usually rapid.

*Summary of three cases charted (chart appended).—*These were examined for periods of eighty-four, forty-seven, and twenty-eight days. The chart shows a week from each. In M. M—

the "pre-fit drop" is followed by a marked "post-fit rise." M. M. A—'s diminution of indoxyl precedes the fits for a longer time, and continues during the fit state. H. G— more resembles M. M—. The "post-fit rise" appears to take place irrespective of the line of treatment adopted for the fits—*e.g.*, M. M— got an enema after her fourth fit; M. M. A— enema after the fourth, and chloral after the sixth; H. G— got nothing.

As nine out of a series of eleven examined over prolonged periods show repetitions of the phenomena recorded, no object would be gained by multiplying summaries. The two exceptions can be briefly discussed: (1) An epileptic imbecile, never has serial manifestations, takes on the average a fit daily, and her output of indoxyl is always low. (2) Unfortunately, loss of bladder control is in her an early prodroma. Her output of indoxyl is large when she is well; then urine is lost, usually in sleep; then chance specimens got during her days of profound confusion contain little indoxyl, but so far, it has never been possible to get a full twenty-four-hours' collection from her while confused.

Deductions from E. F—'s thirteen weeks' period and another three months.—Her balance was better maintained when on a diet rich in proteid free of purin than when on one less rich in proteid, but which contained an average amount of purin. This, as an indication of her metabolism, was of some interest, and supports the contentions stated elsewhere (11)—that a diet poor in purin seems most suitable to the majority of epileptics, and that a degree of mental confusion, etc., results from the strain on metabolism in the attempt to cope with purins having upset metabolic equilibrium, and toxæmia follows.

A control done to see if the "pre-fit drop in indoxyl" would take place when the patient was constipated is of interest. She was allowed to become constipated, and the arrival of fits was awaited. Prodromata (somatic pain, analgesia) appeared; then, a few hours later, before the onset of fits, a typical pre-fit indoxyl drop took place. There probably was a reinforcement of the indoxyl at this period from bowel absorption; but the characteristic drop can only be explained by a break in metabolism, as there was no suggestion of urinary suppression.

In conclusion, the variations in indoxyl are associated with the fit state; they do not appear dependent on alimentary factors; they must be regarded as Kauffmann (12) (in his con-

tributions on metabolism [1908]) suggested as resultant from the formation of indican under nervous influences. In these investigations the cycle of variations has not been found in all epileptics, but in those in whom serial manifestations occur the constant finding is—the high obliteration of well-being, the pre-fit drop, the after-rise, usually rapid.

Incomplete investigations suggest a relationship between the nitrogen output, indoxyl and blood-coagulation as prodromata, but the question needs more investigation. Certainly the pre-fit indoxyl drop appears as constant as any of the other prodromata. The frequent association of indoxyl retention with somatic pain and analgesia suggests a toxæmic element, and, as it is possible to exclude bowel, etc., the question of a metabolic toxæmia leading to diminution in excretion of indoxyl is supported; but knowledge of metabolic processes is too limited to allow of any dogmatism.

I must thank Dr. Parker for granting me facilities for these investigations, and must also thank the nursing staff for the care and trouble taken in obtaining specimens.

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Notes on Gynæcological Conditions Coincident with Mental Disturbances. By E. TENISON COLLINS, M.R.C.S., Gynæcologist to the Cardiff Infirmary, Pontypool Hospital, Cardiff City Mental Hospital, etc.

WHEN Dr. Goodall suggested to me that I might bring before this Association some details of gynæcological work we have been doing in this Institution, I felt it to be a compliment and opportunity I could not fail to take advantage of. Let me, however, premise that I am a gynæcologist, and do not possess more than a general knowledge of the problems in medical psychology which present themselves to you daily, and that whatever, therefore, I may put before you is more from a gynæcological than a mental standpoint.

We may, I think, safely assume that very little attention has been paid hitherto in the asylums and mental hospitals of this country to gynæcological affections or diseases, chiefly because the medical staffs are rarely experts in gynæcology, but in America and Germany considerable work has been done with the assistance of experts or specialists, some results of which I shall shortly submit to you. Yet, when we consider the very intimate relationship between the central nervous and generative systems in the female, this seems rather astounding. For instance, the term "hysteria," a neurosis of psychic origin, derives its name from the uterus, which was thought by the ancients to be a disturbance of that organ. Nor need I more than briefly mention mental lesions due to love affairs, sterility, illegitimate pregnancy, the morning sickness, salivation, cardiac disturbances, melancholia and insanity of pregnancy, the insanity of the puerperal and lactation periods, the change in development of the nervous system on the onset of menstruation, to show how closely these two great systems are associated. Before insanity, menstruation is invariably disturbed and the sexual functions modified.

Every gynæcologist knows that uterine and pelvic lesions are often the commencement of reflex neuroses and disturbances of the nervous system such as headache, insomnia, epilepsy, hystero-epilepsy, hallucinations, etc., many of which are cured or relieved if the pelvic disease originating them is cured.

Insane women are just as liable to uterine disease as the

sane are, and, perhaps, more so, from their habits and loss of moral sense. On the ground that morbid conditions of the pelvic organs may cause insanity, it has actually been suggested that insanity may be cured by removal of the uterine appendages—a suggestion to my mind absolutely unjustifiable and indefensible. I do, however, believe that where there is undoubted disease of these organs those diseases should be treated as in the sane. Gorton, in the *Medical Record*, 1894, says: "In all cases where the menstrual epoch acts as the exciting cause of insanity the ovaries should be removed even if there is no evidence of disease, and Kraemer in 1895 says 200 out of 300 cases of castration were followed by beneficial effects. Brown (*American Journal of Gynæcology*) says that in his experience 25 *per cent.* of female patients in American asylums suffer from pelvic disease, and Hobbs (*Journal of Mental Science*, 1898), a systematic examination of all female insane patients gave the startling result that 93 out of every 100 had pelvic disease; 89 *per cent.* were operated upon and gave 38 *per cent.* mental recoveries, 22 *per cent.* improved, 35 *per cent.* unchanged, and 5 *per cent.* deaths.

"Rohé (*Journal of Mental Science*, 1898) says 60 *per cent.* of insane women personally examined had some abnormal pathological condition of the pelvic organs. The primary question is relief of the local disease; the insane woman has the same right to treatment as the sane, and if such treatment is likely to benefit the mental condition it is our duty to carry it out.

"Kraemer, 1896: There are many cases of women who have become insane through irritation of the ovaries who might derive benefit from surgery. The argument that the operation entails sterility on the woman is of no weight, as such women are likely to bear unhealthy children and propagate their neuroses."

Tomlinson and Bassett, of St. Peter's State Hospital, Minnesota, show that menstrual disorder and pelvic disease are quite common amongst insane women, but in the majority of cases they bear no apparent relation to the insanity.

McNaughton Jones (*British Gynæcological Journal*, 1900), speaking of climacteric insanity, says: "The relation between insanity and disturbances of the sexual function, due to pelvic

disease, must be considered in treating the insane, and where such disease is suspected a thorough examination should be made."

Da Costa lays down the absolute rule, with which I entirely agree, that no surgeon should remove a healthy organ because visceral delusions exist.

Writing of castration Playfair says: "The only class of case in which such operations have any reasonable claim for consideration are those of hystero-epilepsy or other forms of nervous disease which are regularly aggravated at the menstrual periods, and may therefore be assumed to be in some way connected with that function."

The best summary of the present attitude of gynæcologists and alienists is given by Brown, of the Manhattan State Hospital for the Insane. He states:

"(1) That the mental condition is never aggravated by an operation properly done, and the patient is not mutilated by an uncalled-for castration.

"(2) The primary object of surgical operations upon the insane should be to improve the physical state of the patient by relieving them of physical suffering. Patients often show great mental advancement under the stimulus of an improved somatic state resulting from surgical relief, and this improvement may continue to one of entire mental recovery."

The foregoing extracts are a *resumé* of the published opinions relating to the subject we are considering.

I have had under personal observation and treatment a fair number of gynæcological cases accompanied by nervous disturbances, and from these I will briefly cite a few cases typical of the class:

CASE 1.—Mrs. D—, æt. 31; three children, the last two years ago. For the last year she has had menorrhagia, pain in the back, great pain during coitus and menstruation. During last few periods she has been morose, silent, and shows aversion to the children, and sometimes for a couple of days after coitus. Examination reveals enlarged tender uterus with left adherent salpingitis and ovaritis. A fortnight later I curetted the uterus and removed the left adherent appendages. The following period was just as free but painless, and she was very quiet and disinclined to talk to the nurses. The next period was normal, painless, and on married life being resumed

she had no pain or depression afterwards. From this onwards she gradually improved, the mental disturbance vanished, and she was as fond of her children as formerly. She has had two more children since her operation, and is now, I hear, in perfect health.

CASE 2.—Miss S—, æt. 27 ; has had very acute dysmenorrhœa for three years. Two years ago had a fit with onset of menstruation. The fits gradually increased in number, and latterly she has one or two every week, and several a day during menstruation. Examination shows stenosis of cervix with retroflexion. Operation :—Full dilatation of cervix, curettage, and intra-abdominal shortening of round ligaments. Next period free from severe pain, one fit. Nine months later she writes that her periods are now quite easy, that she has had only two slight fits since she left my hospital, and that she is engaged to be married.

CASE 3.—Miss D—, æt. 26 ; with a somewhat similar history since she was nineteen, but fits are evidently hysteropilepsy. She had stenosis with acute antelexion ; dilatation, curettage, and Dudley's operation for antelexion completely relieved her.

CASE 4.—A. S—, æt. 24 ; domestic servant. Menstruation commenced at nineteen ; came on irregularly, but always painful. At twenty had a fit during a period. The fits increased in number, and for last year hardly a week passes without one. Found to have stenosis, and left prolapsed ovary. She was curetted and left ovary removed. Three months later she reported herself at Cardiff Infirmary, having had two periods without pain or fits. Four months later has had two fits but no pain, which is the last news I have of her.

With regard to the work that has been done in this Institution I will give a very brief summary :

(1) Had menorrhagia, during which she becomes abusive and noisy with delusions. Enlarged uterus with endometritis. Curetted. Subsequent period, three days, not excessive. Much better mentally.

(2) Dysmenorrhœa, with menorrhagia and delusions. Conical stenosed cervix with antelexion. Left tender ovary ; was fully dilated and curetted. Ovary not removed. Next period, no dysmenorrhœa ; normal amount ; mentally better ; had no excitement, and was quiet throughout. Later, gone out.

Last report from Dr. Goodall, to whom she wrote :—Has had no more pain or trouble at her periods, which are better than she can ever remember. Says she is quite well.

(3) Periods irregular, over time, but not excessive. Has had smell and taste hallucinations for four years. Hymen intact. Long conical cervix, with stenosis and erosion. Cured. Matron thinks slight improvement mentally lately.

(4) Profuse periods, with mild melancholia and hallucinations ; exacerbated with every period. Hymen intact ; uterus jammed down, being bound down by old pelvic peritonitis ; also ovaries adherent. Laparotomy. Uterus bound down by old adhesions to rectum, involving appendages. Double hydrosalpinx. Cirrhotic ovaries, with corpus luteum in left. Both removed, and uterine adhesions all broken down. Later, has post-operative menopause, but, mentally, no better.

(5) Menorrhagia and epilepsy, ten years ; severe during period with excitement. Hallucinations. Endometritis and uterine polypi. Cured. Hæmorrhage ceased.

(6) Menorrhagia, melancholic, but works between periods. Intra-uterine polypus removed. No further hæmorrhage.

(7) Epileptic ; with excessive periods, during which attacks are more frequent and severe with excitement and incoherency. Adherent retroflexion with cystic right ovary. Ventrifixation and right salpingo-oöphorectomy. Cyst was of tube. Later, no attack of mania since.

(8) Epileptic ; very violent during profuse periods. Left prolapsed adherent ovary ; large cyst of right ovary. Both removed. Matron reports slight mental improvement.

(9) Melancholia. During periods becomes very excited and mischievous. Enlarged uterus, eroded cervix, with left adherent ovary. Dilated and cured. Ovary not removed. Next period much improved mentally ; no headache ; quiet, no excitement. Later, so much improved, sent out.

(10) Melancholic (23) ; becoming agitated and abusive during menstruation, but works between periods. Small uterus with stenosis, fully dilated and cured. Later, matron reports, for first period since admission was quiet. Later, so much improved, sent out. Letter to Dr. Goodall subsequently : "Very pleased to say my health is splendid, and has been since I left your care. Have no pain at any time, and my monthly periods very regular, and without trouble. Profuse in thanks."

Two cases have yet to be done. Two have been done so recently that one cannot draw conclusions. One of double prolapsed ovaries with congenital mental defects; I advised no operation.

I think I have sufficiently demonstrated that, given pathological pelvic lesions, the treatment of these lesions is followed by improvement certainly in physical health and relief from suffering, and in a certain number of cases mental improvement and recovery. From what you have to-day seen of this institution you will, I am sure, at once concede that the Visiting Committee of the Cardiff Mental Hospital are imbued with ideas of progress and research and recognise the need for expert work, and will leave no stone unturned to afford relief or cure to the unfortunate inmates committed to their charge. Apart from the scientific value of this work, the relief and cure of these cases may remove a life-charge upon the ratepayers, and so very handsomely remunerate the Committee for the initial cost of this research and expert work.

In conclusion, I desire to emphasize the suggestion that whenever an insane woman has symptoms of pelvic disease she should be examined by an expert, and if disease exists it should be treated, apart from the insanity. If, however, no gynæcological condition is present, any operation upon the pelvic viscera with the hope of improving the insanity is to be condemned as absolutely unjustifiable. The selection of probable cases in a public institution must be made by the medical staff, and the cases which I have brought before you, selected by Dr. Goodall, in every one of which definite and sometimes severe pelvic trouble existed, show that here the selection has been a careful and intelligent one. Cases of abnormal menstruation which may suggest disease, malformations, displacements or new growths, or cases in which the mental state is worse or exaggerated during menstruation, and cases of periodic or recurrent mania, ought to be carefully examined and appropriate treatment carried out. This treatment would nearly always be operative, because ordinary applications, medicaments, douches, etc., locally applied, would be undesirable, and often impossible.

(¹) Read at the Quarterly Meeting of the Medico-Psychological Association, on February 23rd, 1911, at Cardiff.

DISCUSSION,

At the Quarterly Meeting of the Medico-Psychological Association, on February 23rd, 1911, at Cardiff.

Dr. COLLINS added: In such an institution as this there must be many women with pelvic disease, but I do not advocate interference with the idea that these women who are insane will be cured of their mind trouble, as some American writers have suggested, by operations. But it is evident that where serious pelvic lesions do exist, and more especially if during the times of menstruation the hallucinations and excitement are increased, one ought to give them the chance afforded by interference if pelvic trouble does exist.

Dr. SAVAGE (who was temporarily in the chair), in thanking Dr. Collins for bringing forward such an important set of cases, expressed regret that the lateness of the hour and the fact that there was another paper yet to be read precluded the possibility of discussion.

Metabolism in the Insane.⁽¹⁾ By R. L. MACKENZIE WALLIS,
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versity College, Cardiff.

Introductory.

THE investigation of the problems of metabolism has now become almost exclusively the domain of the chemical physiologist. Much valuable information regarding the method of utilisation of the food-stuffs which enter the body has been ascertained by a study of the excretions. The physiological chemist has, however, passed beyond the boundaries connecting the income and output of these substances. He now seeks to trace the different transformations and combinations which take place in the body, and to connect up all the links of the chain. These changes are intimately bound up with the individual cells, and their metabolism. Unfortunately our knowledge of the cell is at present very limited, but it will be seen how important even this scanty information is to the subject under discussion. It becomes more and more evident every day that pathological changes in the tissues and cells of the body must be considered not only from a morphological point of view, but also from the purely metabolic standpoint. A disturbance in the metabolism of the cell may in time make itself evident, but it is quite conceivable that such changes are taking place without any definite anatomical signs. On the other hand, a morphological change

may produce only a very slight derangement of cell metabolism, so slight as to escape recognition. The study, therefore, of pathology with physiological chemistry for its foundation, offers a wide field for further investigation. The object of the present communication is twofold, namely, to correlate the known facts with regard to metabolism in the insane, and to emphasise the importance of studying cellular metabolism in its relation to pathological disturbances.

The Results as Regards the Metabolic Products in the Urine.

Creatinine.—Our present knowledge of metabolism in the insane person is due mainly to the labours of Folin (1) and his co-workers in America, and Hoogenhuyze and Verploegh (2) and also Kauffmann (3) in Europe. Folin has published extensive analyses of the urine in various forms of insanity with particular reference to the nitrogenous component creatinine. This substance is one of the most constant urinary constituents, and is found to show only slight variations in each individual from day to day. As a result of his studies Folin concluded "that mental disorders do not necessarily involve great changes in metabolism sufficient to modify the output of creatinin."

The excretion of creatinine in some forms of insanity has also been investigated by Hoogenhuyze and Verploegh (2), and Benedict and Myers (5). The observations of these authors agree very closely with those of Folin.

In collaboration with Dr. Goodall, the writer (4) has investigated the output of creatinine in the insane, with especial reference to the influence of warm and electric baths. The conclusions arrived at were :

(1) That the excretion of creatinine in the insane is in general subnormal.

(2) That electric bath treatment tends to increase the creatinine in the urine.

(3) That warm bath treatment, on the other hand, has little, if any, effect on the creatinine output.

(4) That variations in the volume of the urine excreted seem to be characteristic of the insane.

The significance of the results so obtained will be referred to later in the present paper. Since creatinine in the urine is constant in amount from day to day for the normal healthy

individual, it may be of interest to consider the excretion of this body in different forms of insanity.

An investigation of the variations in excretion of creatinine in a number of insane patients has been carried out at the Cardiff City Mental Hospital through the kindness of Dr. Goodall, and I would here express my indebtedness to him for much valuable help and assistance.

The same precautions were observed as noted in the previous communication (4), namely, with reference to the diet, the collection of the sample of the twenty-four hours' excretion, and the rapidity of estimation of the contained creatinine. The method used was also the same as therein described.

I would here point out the existence of certain very definite fallacies in the colorimetric method of estimation of creatinine, which may introduce very serious errors into the results. At the present juncture it is advisable to emphasise this point, and to bear this in mind when drawing any definite conclusions.

The results as regards the relation to creatinine excretion are here appended:

CASE 1.—J. L—, male, æt. 39; melancholia. Body-weight 54·8 kg.; height 1·62 metres. Patient in bed. Diet of milk and milk foods. The body temperature of this patient, and of all the patients examined, was taken twice daily, and showed no marked variations from that usually considered as normal. The urine, on examination, always appeared deeply pigmented, and invariably showed a dense white deposit consisting mainly of earthy phosphates.

Volume in cc.'s*	350	310	350	490	575	660
Specific gravity	1025	1015	1025	1030	1025	1015
Creatinine	0·707	0·339	0·567	0·264	0·788	0·554

* The figures indicating the volume of urine represent the total twenty-four hours' excretion.

The average excretion for five days was 0·680 grm., and the creatinine coefficient 12 mgrms. The figure for the fourth day has been omitted, since it shows an apparent discrepancy.

A later experiment on the same patient with a change of diet was performed. The nature of the mixed diet, and the actual quantities given, correspond with that already described for the male patients described in a previous paper (*loc. cit.*).

Volume	850	690	790
Specific gravity	1020	1020	1025
Creatinine	0.467	0.772	0.481

This experiment gave an average of 0.573 grm. *per diem*. The small quantity of urine secreted daily is to be partly accounted for by the fact that the patient suffers from ptyalination.

CASE 2.—J. R—, male, æt. 32; subacute melancholia with ideas of unworthiness. Body-weight 55.7 kg.; height 1.7 metres. The patient was kept on a mixed diet similar to that referred to in Case 1, with the addition of slightly more protein. The urine appeared quite clear, and showed no tendency to deposition on standing.

Volume	2500	2890	2095
Specific gravity	1010	1012	1012
Creatinine	1.00	1.38	0.963

The volume of the urine passed is very striking, amounting almost to a condition of polyuria. The experiment, however, was carried out in the month of January. It is of interest to note that the quantity of actual fluid consumed *per diem* amounted to about 1.5 litres, and in spite of the polyuria the patient gained weight. Average excretion 1.114 grms., and the coefficient 21.3 mgrms.

CASE 3.—B. S—, female, æt. 43; subacute melancholia with ideas of unworthiness, and suicidal impulses. Body-weight 55.8 kg.; height 1.54 metres. The diet was the same as that given for all the female patients described in the previous communication. The urine was quite clear on all occasions, and showed no tendency to deposition on standing.

Volume	1010	1220	1620
Specific gravity	1015	1015	1010
Creatinine	0.555	0.451	0.662

The average excretion for the three days was 0.556 grm., and the creatinine coefficient 9.9 mgrms.

CASE 4.—M. T—, female, æt. 37; acute melancholia. Body-weight 54.6 kg.; height 1.67 metres. Diet as in Case 3.

Volume	1040	960	1140
Specific gravity	1020	1020	1020
Creatinine	0.645	0.537	0.752

This gives an average daily excretion of 0.644 grm., and a coefficient 11.7. A month later the patient had increased in weight by 3.4 kg., and an experiment with the same diet gave a similar result.

Volume	1330	750	800
Specific gravity	1015	1025	1025
Creatinine	0.611	0.612	0.712

Average daily excretion of creatinine 0.645 and the coefficient 11.1.

CASE 5.—J. F—, male, æt. 40; acute melancholia. Body-weight 63.9 kg. Diet a mixed one of known composition and similar to previous cases. The urine was in all cases acid in reaction, and quite clear.

Volume	2440	1440	2430
Specific gravity	1010	1010	1010
Creatinine	1.593	0.940	1.035

The average daily excretion 1.189, and the creatinine coefficient 18.5. On another occasion the average creatinine excretion for three days amounted to 1.858 grms., and the quantity of urine secreted was also large.

CASE 6.—C. G. H—, male, æt. 29; acute melancholia. Body-weight 49.3 kg.; height 1.67 metres. Diet—milk, etc.—creatine free. Patient kept in bed.

Volume	720	1070	550	750	1470	950
Specific gravity	1025	1015	1030	1030	1015	1020
Creatinine	0.806	0.832	0.839	0.945	0.654	0.665

The average creatinine excretion for the six days amounted to 0.790 grm., corresponding to a coefficient of 17 mgrms.

A later experiment on a mixed diet yielded similar figures after an interval of one week, sufficient to allow the body to adjust itself to the changed dietary.

Volume	840	1620	1220
Specific gravity	1025	1015	1020
Creatinine	0.829	0.830	0.978

This experiment gave an average value for the creatinine output on the three days of 0.879, corresponding to a creatinine coefficient of 18 mgrms.

CASE 7.—W. A—, male, æt. 38; chronic melancholia.

Body-weight 53.9 kg. Patient very thin and pale, kept in bed.
Diet—milk, etc.—creatinine free.

Volume	.	.	.	1600	.	795	.	735	.	107	.	1090
Specific gravity	.	.	.	1020	.	1015	.	1025	.	1020	.	1017
Creatinine	.	.	.	1.905	.	2.109	.	1.553	.	1.124	.	0.970

The average excretion of creatinine for the five days of the experiment was 1.552 grms., giving a coefficient of 28.6.

CASE 8.—M. A—, female, æt. 79; senile melancholia. Body-weight 45.9 kg.; height 1.54 metres. Diet—milk, etc.—creatinine free.

Volume	.	.	.	890	.	880	.	425	.	1480	.	450	.	960
Specific gravity	.	.	.	1015	.	1010	.	1015	.	1010	.	1015	.	1020
Creatinine	.	.	.	0.525	.	0.375	.	0.442	.	0.666	.	0.346	.	0.691

This experiment illustrates the variations in the amount of creatinine excreted daily, and is in striking contrast to the normal healthy individual. The average for the six days of the experiment was 0.507 gm., and the creatinine coefficient 11.

CASE 9.—H—, male, æt. 57; melancholia, hypochondriacal. Body-weight 59.0 kg.; height 1.72 metres. Diet—milk, etc.—creatinine free.

Volume	.	.	.	1650	.	845	.	1350	.	600	.	850	.	625
Specific gravity	.	.	.	1015	.	1015	.	1030	.	1020	.	1010	.	1015
Creatinine	.	.	.	0.951	.	1.536	.	0.877	.	0.899	.	0.592	.	0.6378

Average—0.980 gm. for five days of the experiment, giving a coefficient of 16.6.

CASE 10.—A. L. G—, female, æt. 28; melancholia with stupor. Body-weight 50.5 kg.; height 1.62 metres. Diet—milk, etc.—creatinine free.

Volume	.	.	.	2620	.	1480	.	1540	.	1290	.	1150	.	1070
Specific gravity	.	.	.	1015	.	1010	.	1010	.	1015	.	1015	.	1020
Creatinine	.	.	.	1.143	.	0.768	.	1.084	.	0.842	.	0.802	.	0.709

The average creatinine excretion for the six days was 0.891 gm., and the coefficient 14 mgrms.

CASE 11.—D. H—, female, æt. 25; melancholia with stupor. Body-weight 49.0 kg.; height 1.67 metres. Diet—mixed, similar to Case 2, but without addition of milk, eggs, and milk puddings.

Volume	. 890	. 1180	. 1700	. 750	. 1140	. 1100
Specific gravity	. 1015	. 1015	. 1015	. 1015	. 1018	. 1020
Creatinine	. 0.667	. 0.884	. 1.105	. 0.532	. 0.941	. 0.679

The average for the six days amounted to 0.801 grm., and the creatinine coefficient 16 mgrms.

CASE 12.—J. O. B—, male, æt. 24; adolescent dementia. Body-weight 60.3 kg.; height 1.67 metres. Mixed diet.

Volume	. 2940	1055	990	1380	1800	1170	1020	1150	1250	1810
Specific gravity	. 1015	1023	1020	1020	1015	1015	1015	1025	1018	1010
Creatinine	. 1.440	1.392	0.881	1.324	1.602	1.067	0.979	1.449	1.250	0.932

The average value for nine days of the experimental period was 1.270, and the coefficient 21.

CASE 13.—M. W—, female, æt. 28.; adolescent dementia. Body-weight 45.9 kg.; height 1.65 metres. Mixed diet.

Volume	. 880	. 850	. 900	. 1000	. 1260	. 820	. 700
Specific gravity	. 1020	. 1010	. 1015	. 1020	. 1015	. 1020	. 1015
Creatinine	. 0.731	. 0.603	. 0.892	—	. 0.642	. 0.844	. 0.544

The average value for the six days amounted to 0.659 grm., giving a creatinine coefficient of 14.3 mgrms.

CASE 14.—H—, male, æt. 29; catatonia. Body-weight 75.8 kg.; height 1.79 metres. Diet—milk, etc.—creatine free.

Volume	. 1430	. 1540	. 815	. 890	. 1450	. 1052
Specific gravity	. 1015	. 1015	. 1025	. 1015	. 1015	. 1025
Creatinine	. 0.993	. 1.540	. 1.043	. 0.998	. 1.123	. 1.209

The average value for the six days was 1.136 grms., and the coefficient 14.9.

CASE 15.—E. M—, female, æt. 24; acute mania. Body-weight 53.4 kg.; height 1.60 metres. Diet a mixed one, and similar to preceding cases.

Volume	. 920	. 520	. 790	. 860
Specific gravity	. 1025	. 1025	. 1020	. 1015
Creatinine	. 0.737	. 0.676	. 0.995	. 0.662

The average excretion for the four days amounted to 0.767 grm., and the creatinine coefficient 14 mgrms.

CASE 16.—D—, male, æt. 42; general paralysis, demented, exacerbation. Body-weight 57.8 kg. Diet—milk, etc.—creatine free.

Volume . . .	1370	1440	900	250?	1960	1020	1300
Specific gravity	1015	1015	1020	1020	1015	1015	1015
Creatinine . .	1'289	1'780	1'121	0'610	1'156	1'397	0'809

Average value for creatinine 1'078 grms., and the creatinine coefficient 18'6.

CASE 17.—M—, male, æt. 45; general paralysis, demented. Body-weight 53'4 kg. The diet consisted entirely of milk, milk puddings, and eggs.

Volume . . .	1920	1370	1200	760	1180	3020	815
Specific gravity	1010	1010	1010	1025	1010	1010	1020
Creatinine . .	0'893	1'037	0'823	0'927	0'803	0'941	0'794

The average excretion in this case was 0'888 grm., and the creatinine coefficient 16'4.

CASE 18.—M. E. C—, female, æt. 49; general paralysis. Indications of cerebral tumour at the time of the experiment. Body-weight 53'0 kg.; height 1'67 metres. Diet—mixed, and similar in composition and quantity to that already described for female patients (*loc. cit.*). The urine was quite clear, and of a very pale colour, but no sugar or albumen was detected.

Volume . . .	1210	1140	1990	2340	1850
Specific gravity	1015	1015	1010	1010	1010
Creatinine . .	0'901	0'932	2'507	1'022	1'004

The average daily excretion for the five days of the experiment amounted to 1'271 grms., and the coefficient was 23'9 mgrms. per kilo. The figures given are very striking, and the large increase on the third day of the experiment is difficult to explain. These variations are frequently seen in cases of this nature.

CASE 19.—H—, male, æt. 49; general paralysis, demented, exacerbation. Body-weight 58'0 kg.; height 1'74 metres. The urine of this patient gave an average value of 0'343 grm. on days when it was tolerably certain that all the twenty-four hours' sample had been collected. The difficulty of securing a full daily excretion rendered a series of analyses impossible.

CASE 20.—R. R—, female, æt. 27; acute hallucinations, delusions, secondary depression. Body-weight 42'9 kg.; height 1'54 metres. A mixed diet given of known constitution.

Volume	880	. 1830	. 650
Specific gravity	1017	. 1010	. 1010
Creatinine	0.519	. 0.704	. 0.475

The creatinine excretion in this experiment gave an average for the three days of 0.566 grms., and a coefficient of 13.1.

CASE 21.—R. C—, male, æt. 25; hypochondriacal delusions about gastric region; secondary depression. Body-weight 57.3 kg.; height 1.67 metres. Mixed diet as already described.

Volume	840	. 650	. 740	. 710	. 680
Specific gravity	1025	. 1020	. 1030	. 1030	. 1030
Creatinine	0.924	. 0.605	. 0.886	. 0.946	. 0.999

The average value in this case amounted to 0.872 grm., and the coefficient 14 mgrms. per kilo.

CASE 22.—M. S—, female, æt. 55; acute hallucinations and delusions; secondary depression. Body-weight 36.7 kg.; height 1.39 metres. Diet mixed, with a high protein content. The urine was in all cases acid in reaction, and showed a slight deposit.

Volume	1250	. 1360	. 1110
Specific gravity	1015	. 1015	. 1010
Creatinine	0.857	. 0.802	. 0.840

The average creatinine excretion for the three days of the experiment was 0.833 grms., and the co-efficient 22.6 mgrms.

CASE 23.—M—, male, æt. 21; dementia. Body-weight 57 kg.; height 1.7 metres. A milk diet was prescribed, together with milk puddings and eggs.

Volume	480	. 610	. 940	. 670	. 500	. 1125
Specific gravity	1025	. 1040	. 1030	. 1026	. 1030	. 1025
Creatinine	1.050	. 1.171	. 1.951	. 1.219	. 1.038	. 2.070

The average daily excretion was 1.416 grms. and the co-efficient 24.8 mgrms. At first it appeared that the sample analysed did not represent the twenty-four hours' excretion, but the relatively high excretion of creatinine on these days did not favour this view. A later experiment with the same patient gave similar results, and every possible care in collection of the sample was taken.

Volume	1500	. 910	. 900
Specific gravity	1030	. 1030	. 1039
Creatinine	1.910	. 1.619	. 0.990

LVII.

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TABLE showing synopsis of recorded Cases of Creatinine Excretion
in various Mental Disorders.

No. of case.	Age in yrs.	Sex.	Nature of psychosis.	Weight in kilos.	Height in metres.	Average daily excretion of creatinine.	Creatinine co-efficient.	Author.
	23	M	Normal person	62.5	...	Grms. 1.33	22.7	Wallis.
	...	...	7 normal persons	...	...	1.55	20-25	Folin.
1	68	M	Melancholia	...	...	1.045	...	Folin.
2	64	M	"	59.7	...	1.09	18.2	"
3	75	M	"	61.5	...	0.936-1.106	15.3	Hoogenhuyze and Verploegh.
4	47	M	"	43.8	1.57	0.823	18.8	Benedict and Myers.
5	59	F	"	39.9	1.16	0.473	11.9	"
6	57	F	"	59.4	1.68	0.676	11.4	"
7	45	F	"	47.6	1.50	0.476	10.0	"
8	39	M	"	54.8	1.62	0.680, 0.573	12.0	Wallis.
9	32	M	Melancholia, subacute	55.7	1.7	1.114	21.3	"
10	43	F	"	55.8	1.54	0.556	9.9	"
11	37	F	Melancholia, acute	54.6	1.67	0.644, 0.645	11.1, 11.7	"
12	40	M	"	63.9	...	1.189	18.5	"
13	29	M	"	49.3	1.67	0.790, 0.879	17, 18	"
14	38	M	" chronic	53.9	...	1.552	28.6	"
15	81		"	32.5	...	0.274	8.4	Hoogenhuyze and Verploegh.
16	79	F	" senile	45.9	1.54	0.507	11.0	Wallis.
17	57	M	Melancholia, hypochondriacal	59.0	1.72	0.980	16.6	"
18	28	F	Melancholia, with stupor	50.5	1.62	0.891	14.0	"
19	25	F	"	49.0	1.67	0.801	16.0	"
20	24	M	Adolescent dementia	60.3	1.67	1.270	21.0	"
21	28	F	"	45.9	1.65	0.659	14.3	"
22	85		Senile	39.0	...	0.324, 0.215	8.3	Hoogenhuyze and Verploegh.
23	85	F	"	39.3	1.65	0.292	7.4	Benedict and Myers.
24	92	F	"	62.6	1.50	0.464	7.4	"
25	20	M	Dementia præcox	69.7	...	1.40	20.0	Folin.
26	26	F	"	52.8	...	0.940	17.7	"
27	17	M	"	56.9	...	1.09	19.0	"
28	29	F	"	...	...	0.858	...	"
29	66	F	"	40.1	1.65	0.505	12.6	Benedict and Myers.
30	45	F	"	48.3	1.65	0.786	15.8	"
31	32	F	"	52.9	1.58	0.732	13.9	"
32	39	F	"	61.2	1.65	0.863	14.1	"
33	30	F	"	41.7	1.50	0.565	13.5	"
34	57	F	"	49.0	1.55	0.627	12.8	"
35	45	F	"	42.5	1.49	0.487, 0.447	10.5	"
36	31	F	"	51.1	1.60	0.765	15.1	"
37	51	F	"	59.0	1.65	0.754	12.8	"
38	52	F	"	75.9	1.50	1.153	15.2	"
39	45	F	"	49.0	1.59	0.885	21.8	"
40	18	F	"	44.0	1.58	0.689	15.6	"
41	26	F	"	28.6	1.79	0.324, 0.369	...	"

No. of case.	Age in yrs.	Sex.	Nature of psychosis.	Weight in kilos.	Height in metres.	Average daily excretion of creatinine.	Creatinine co efficient.	Author.
42	16	F	Dementia præcox	43.0	1.55	Grms. 0.330	7.6	Benedict and Myers.
43	57	F	"	50.0	1.63	0.559	11.1	" "
44	45	F	Paranoia	42.5	1.49	0.447	10.5	" "
45	29	M	Catatonia	75.8	1.79	1.136	14.9	Wallis.
46	58	F	Manic depressive	40.86	...	0.614	15.0	Folin.
47	52	F	"	63.78	...	0.814	13.3	"
48	41	F	"	50.83	...	1.104	21.7	"
49	63	M	"	55.85	...	0.81	14.5	"
50	47	F	"	80.3	...	0.75	9.4	"
51	33	M	"	67.2	...	1.58	23.3	"
52	18	M	"	40.1	...	0.678, 0.679	16.9	"
53	50	"	"	47.0	...	0.991-1.183	...	"
54	63	F	"	64.3	1.68	0.748	11.6	Benedict and Myers.
55	50	F	"	46.5	1.64	0.973	20.9	" "
56	70	F	"	68.5	1.65	0.963	14.0	" "
57	25	F	"	85.0	1.51	1.126	13.2	" "
58	19	F	"	58.0	1.71	0.633	10.9	" "
59	65	F	"	45.8	1.28	0.620	13.5	" "
60	45	"	Mania	52.5	...	0.607-2.414	23.9	Hoogenhuyze and Verploegh.
61	61	"	"	65.3	...	0.634-1.200	14.1	" "
62	24	F	Mania, acute	53.4	1.60	0.767	14.0	Wallis.
63	36	F	Toxic delirium	49.0	1.65	0.696, 0.722, 0.671	...	Benedict and Myers.
64	49	M	General paralysis	49.7	...	0.75-0.97	...	Folin.
65	42	M	"	64.75	...	1.485	22.9	"
66	41	M	"	85.3	...	1.81	21.2	"
67	44	F	"	41.5	...	0.800	19.2	"
68	35	M	"	56.6	...	1.38	24.3	"
69	44	M	"	70.6	...	1.05	14.8	"
70	53	M	"	...	...	0.70	...	"
71	42	M	"	57.8	...	1.078	18.6	Wallis.
72	45	M	"	53.4	...	0.888	16.4	"
73	49	F	"	53.0	1.67	1.271	23.9	"
74	49	M	"	58.0	1.74	0.343	...	"
75	53	"	Cyclic insanity	57.3	...	0.828-1.918	18.6	Hoogenhuyze and Verploegh.
76	37	F	Dementia paralytica	71.6	...	0.934-1.714	18.6	"
77	51	F	"	79.3	...	0.936-1.854	16.7	"
78	19	F	"	61.0	...	0.947	15.1	"
79	52	F	"	64.9	1.45	0.698	10.8	Benedict and Myers.
80	21	M	Dementia	57.0	1.7	1.416, 1.506	24.8, 26.4	Wallis.
81	27	F	Acute hallucinations	42.9	1.54	0.566	13.1	"
82	25	M	Hypochondriacal delusions	57.3	1.67	0.872	14.0	"
83	55	F	Acute hallucinations	36.7	1.39	0.833	22.6	"
84	46	M	Alcoholic delusional insanity	53.0	1.75	0.697	15.0	Benedict and Myers.
85	69	M	"	58.0	1.65	0.827	14.2	" "
86	56	F	Depression	40.86	...	0.586	14.3	Folin.

Average creatinine excretion 1.506 grms., and the coefficient 26.4 mgrms.

The relatively high excretion of creatinine in this case calls for

some remarks. The variations in the volume of urine passed and the high specific gravity point to very marked metabolic changes. This is further emphasised by the creatinine excretion. The body-weight is quite low considering the height of the patient, and this does not supply any explanation for these results. The only conclusion is that we have here a very marked pathological disturbance, but no definite locus can be assigned from the clinical aspects of the case.

Summary of Results.

An examination of the records of the experiments detailed above reveals the close agreement with those of other writers on the subject. To make this fact clearer a synopsis of all the recorded cases has been compiled, and is included in the accompanying table. My results agree with Folin (1) that mental disorders do not necessarily involve any marked changes in the output of creatinine. The creatinine excretion appears in all the cases to be generally subnormal, as also the creatinine co-efficient, or the relation of creatinine to the body-weight. This, however, is not surprising in view of the fact that a low output of this body is found in a large number of pathological conditions. This low excretion is, therefore, not peculiar to any one disease. The relationship to the body-weight of the patient, or more especially to *the active protoplasmic mass* is emphasised in these experiments, as is also the influence of age and sex. The absence of any differences due to variations in the diet also supports the work of previous investigators.

The results also agree with Folin that the creatinine excreted is independent of the amount of protein in the food, or of the other nitrogenous constituents in the urine. Further, the quantity of creatinine in the urine is not influenced by muscular work.

When, however, we endeavour to verify the statement that the creatinine output is constant for each individual from day to day certain very definite discrepancies are noted. The experiments recorded above all show considerable variations, and these seem to be characteristic of the insane person. The same variations are also very well seen in the results recorded by Folin (1), Benedict and Myers (5), and Hoogenhuyze and Verploegh (2), for mental disorders. Further, the observable clinical symptoms do not show any coincidence with these

changes. What is the possible significance of this disordered metabolism in the insane person, whereby the excretion of this body is not only subnormal, but at the same time departs considerably from the normal constancy?

In attempting to solve this question one has first to consider the possible origin of creatinine in the urine. It is clearly not derived directly from any creatine or creatinine taken into the body with the food, since the ingestion of these bodies has little if any influence on the amount excreted. The experiments recorded above with different known dietaries are also in favour of its endogenous origin.

There are, then, four possible sources of the creatinine in the urine, assuming that it is not exogenous, namely:

(a) From a special part of the tissue-cell, for creatine is found in the muscular system, and it is possible that it may exist in a complex similar to nucleic acid, and thus similar in origin to the purine substances. These substances, however, do not accumulate in the muscle. Further, nucleic acid and other substances share in the breakdown during autolysis, and if creatine exists in a similar form one would expect it to appear on autolysis. Seemann, Gottlieb and others have stated this to be the case, but their results have been disproved by Mellanby (6), who noted the extraordinary rapidity of the action of bacteria on creatine. Again, no nucleic acid or phosphatide has been found to yield creatine on hydrolysis. This mode of origin therefore appears unlikely, but has not been entirely disproved.

(b) Creatinine in the urine may represent a phase in the general protein metabolism, either from—

(i) A general nitrogenous breakdown, or—

(ii) A concentration of the nitrogen of the cell-protein before conversion into urea.

Now, creatine is not an α -amino-acid, and further, it contains a methyl group in the molecule. Although we do not know of the existence of a methylated amino-acid amongst the breakdown products of proteins, there is a possibility of such a substance being present. If creatine and creatinine originated in this way it would be quite justifiable to assume that pure protein would increase the excretion of creatinine in the urine. This, however, has been disproved above, and also by other observers.

(c) Creatinine represents the end-product of a special group of protein metabolism.

Now since arginine has a composition closely resembling that of creatine, and further, that it exists in the protein molecule, we may have in this substance a possible precursor.

Arginine . . . $\text{NH} : \text{C}(\text{NH}_2) \cdot \text{NH} \cdot (\text{CH}_2)_3 \cdot \text{CHNH}_2 \cdot \text{CO}_2\text{H}$.

Creatine . . . $\text{NH} : \text{C}(\text{NH}_2) \cdot \text{N}(\text{CH}_3) \cdot \text{CH}_2 \cdot \text{CO}_2\text{H}$.

In the oxidation of protein the methyl group may arise by the splitting up of the amino-acid united to arginine. At present, however, we have no proof that arginine is a precursor of creatine or creatinine.

(d) Creatinine may represent synthetic activity on the part of the cell. This view receives support from the observations of feeding experiments with glycocyamine (guanidine acetic acid). This substance, when given *per os*, is excreted as creatine, and since it is distinctly poisonous it has to be given in very small quantities. The glycocyamine becomes methylated, and in this form is removed from the body as an innocuous compound.

Now, methylation is a very common process in the body when nocuous compounds have to be synthesised to innocuous compounds. We have, for example, the methylated bases in nitrogen ring compounds, and amongst methylamine derivatives in the body mention may be made of choline and its derivatives, and also adrenalin. Also the appearance of methyl-mercaptan in the urine after asparagus, and methyl-tellurium after ingestion of tellurous acid are of significance in this respect. Now, creatinine is a strongly basic substance, and since it has a ring structure it offers greater resistance to oxidation in the body. Creatine, on the other hand, is an innocuous neutral substance. Further, creatine is known to have a marked action on the growth and activity of cellular tissues, and consequently we cannot regard it as entirely functionless. Mellanby (*loc. cit.*) has investigated the phylogeny and ontogeny of the muscular system in relation to creatine, and his results clearly point to synthetic activity on the part of the cell, with creatine as an end-product. Experimental observations on isolated muscles have shown that creatine, unlike lactic acid and carbon dioxide, is quite independent of muscular activity. This is also in accordance with the absence of effects of exercise on the creatinine output in man.

Reviewing all the evidence which has been adduced in support of the origin of creatine in the muscles, and creatinine in the urine, one is inclined to accept the last-mentioned as the most probable view.

The creatinine in the urine, owing to its constancy in the normal healthy individual, is therefore the best measure of tissue metabolism that we have at present. Any very marked variations in this urinary constituent will indicate a disorder of metabolism. Now, in all the diet experiments on the insane the creatinine excretion appears to be subnormal, and, further, shows variations from day to day. These daily variations I have so far only found in mental cases, although a large number of pathological conditions have been investigated. The results seem to point to distinct errors of cellular metabolism in these cases, and as such should suggest lines of treatment.

The Presence of Indican and Indigo Derivatives in the Urine of Insane Persons.

A number of estimations were made on the cases described above by the method of comparison of the blue tint obtained from a definite quantity of urine.

The method, of course, is open to many objections, but it may be of interest to make a few observations on the results. The amount of indigo obtained showed very marked variations from day to day. In some cases a small quantity appeared constantly, but in others marked fluctuations were noted. Further, a rise in the output of this substance was found to be followed by a distinct fall. The test was in every case applied to a mixed twenty-four hours' sample, and in consequence the changes observed may possibly be due to destruction of the indigo derivatives by bacterial agency or otherwise. The whole subject of the method of estimation of these indigo derivatives has been investigated by my friend, Dr. R. V. Stanford, and the results recorded in another part of this Journal. My object in this paper is to draw attention to the possible significance of the presence of indigo derivatives in the urine of the insane person. For many years, it has been usual to regard the presence of indican in the urine as an indication of the extent of putrefactive changes in the intestinal tract. There are, however, reasons for thinking that the indol and indol deriva-

tives arise from processes other than putrefaction. The discovery of tryptophane as a characteristic breakdown product of protein substances by Hopkins and Cole (7), and the further work of Ellinger on the constitution and synthesis of this substance, has led to the view that it may be one, or possibly the only precursor of indol in the body, and indican in the urine. We must not, however, regard this statement as in any way dogmatic, since the possibility of a synthesis of the benzene ring in the body must be considered.

If indol is administered to animals whose urine is free from its derivatives the animals still remain free, but if the indol be inserted directly into the cæcum of the animal then the urine is found to be rich in indican. Now, several protein substances are known which do not yield tryptophane on hydrolysis by acids, or ferments; amongst these gelatine and zein (the protein of maize) may be cited. Underhill (8) has carried out feeding experiments on animals with gelatine and zein, and compared the indican excretion with other dietaries. He came to the conclusion that gelatine and zein diets considerably reduce the quantity of indican excreted, but in the latter case the zein was only imperfectly utilised. The results he considers of importance in relation to the treatment of intestinal troubles, where putrefaction is to be counteracted. In the same paper, he has reviewed the evidence of other observers with regard to the origin of indican in the urine. These results, however, are very doubtful in view of the fact that the methods of estimation of this substance are faulty. When a more accurate method has been devised, then, and then only, will it be possible to decide whether the indican in the urine is derived from putrefactive changes in the intestine, or whether it represents an intermediate product in the metabolism of tryptophane and other benzene derivatives. Indol is very rapidly absorbed by the intestinal mucous membrane, and, furthermore, is a toxic substance, and rapidly eliminated by the kidneys.

The importance of tryptophane in the dietary has been especially emphasised by Willcock and Hopkins. They fed young mice on the protein from maize (zein), and found that the animals died in a few days. Examination of the organs *post-mortem* did not reveal any anatomical lesions, and they consequently considered that a supply of tryptophane was in some way essential to the regulation of cell metabolism.

In those animals where tryptophane was added to the diet the survival period was prolonged, and materially added to their well-being. These observations on animals supply a possible explanation of the low physical and mental condition of some of the inhabitants of Northern Italy, whose chief food supply consists of maize.

These experiments are very striking, and suggest the possibility that tryptophane supplies the active principle of an internal secretion to regulate the cycle of events associated with the life of the individual cell. These facts are, however, difficult to correlate with the results already ascertained with regard to indigo derivatives in the urine of the insane. This is not surprising in view of the irregularities described by Dr. Stanford in the paper already referred to. The object of bringing these points forward is to emphasise the importance of work on this subject and the possible pathological significance of indican in the urine, especially when it occurs in large quantities.

The Sulphur Metabolism, with Especial Reference to Neutral Sulphur.

The phases in the metabolism of sulphur in the body can be best followed by studying the variations of the sulphur compounds in the urine. These amount in the normal person to about 3 grms. *per diem*.

Three distinct types of sulphur combination are found, *viz.* :

(a) Sulphur as inorganic sulphates, amounting to from 1 to 2 grms. *per diem*.

(b) Sulphur as ethereal sulphates, representing about one-tenth of the total sulphur content of a twenty-four hours' excretion.

(c) Unoxidised, or neutral sulphur. This is closely related to the sulphur containing amino-acid cystine, and is present in very small amount in normal urine, namely, 0.2 gm. (calculated as SO_3) *per diem*.

The principal source of sulphur in the body is that contained in the protein fractions of the food-stuffs. Now proteins contain 1 to 1.5 *per cent.* of sulphur, and 100 gm. of protein will yield 16 gm. of nitrogen, with 2.5 gm. of sulphur as SO_3 . In view of these facts it would be reasonable to assume that with

variations in the protein content of the diet there would be corresponding variations in the sulphur compounds excreted in the urine. Such differences are noticed in the case of the inorganic sulphates and the ethereal sulphates.

The unoxidised or neutral sulphur in the urine is, however, quite independent of the total metabolism of sulphur compounds in the food-stuffs, and therefore of endogenous origin. In this respect the neutral sulphur is similar to creatinine. The normal figure, *viz.*, 0.2 grm. *per diem*, is found to be constant even with an increased protein diet.

The distribution of the sulphur compounds was ascertained in the urine from Cases 1, 6, 7, 9 and 10 above described, by the methods of analysis adopted by Folin. In all these cases the nature of the psychosis was varying forms of melancholia, and consequently no definite conclusions can be drawn as to the influence of different mental disorders on the sulphur metabolism.

The results, though very scanty, seem of sufficient interest to warrant their mention in this communication.

In all the cases the total sulphur excreted varied between 1.3 and 1.5 grms. Of this sulphur, that combined in inorganic form varied from 1 to 1.15 grms., and the ethereal sulphur amounted to 0.06 to 0.1 grm. The diet in all the experimental periods was comparatively rich in sulphur.

The neutral sulphur excretion in these cases showed, on the other hand, a very distinct departure from the amount usually recognised as normal. In the same patient variations were noticed from day to day corresponding almost exactly to the creatinine excretion. The figures varied from 0.09 to 0.15 in the different cases examined.

A consideration of these observations, though they are far from numerous, emphasises the value of neutral sulphur as an index of metabolism. The amount of sulphur excreted in this form appears to indicate the degree of cellular activity, and when taken in conjunction with other products of cell metabolism, *e.g.*, creatinine, affords valuable information as to the pathological condition of the subject.

Finally, I would refer to the detailed work of Koch (10) on the sulphur compounds of the central nervous system. Many interesting points have been elucidated by this observer, which have a direct bearing on the subject under discussion. He

found that the grey matter of the nervous system contains sulphur mainly in the form of neutral sulphur, whilst the white matter contains sulphur in the form of lipine and neurokeratin combinations. Further, Koch emphasised the importance of this element in the processes of oxidation, which are essential to the functional activity of the nervous system. In dementia præcox a diminution of neutral sulphur and a rise in the inorganic sulphur content of the brain was observed. These changes may produce an interference in the utilisation of oxygen by the brain, and explain some of the symptoms of this, and allied mental disorders.

Such internal changes in the distribution of the element sulphur will undoubtedly be reflected in other parts of the body, and finally exert their influence on the output of sulphur compounds in the urine.

Discussion of Results.

The observations recorded above on the metabolism of insane persons deal mainly with the excretion of three urinary constituents, *viz.*, creatinine, indican, and neutral sulphur. The extensive analyses recorded by Folin, Hoogenhuyze and Verploegh, and also Kauffmann, include figures for many of the metabolic products excreted in the urine of the insane, and the original papers or monographs of these authors should be referred to. The figures given all agree in the apparent absence of any marked variations from the normal individual. The excretions of creatinine, indican, and neutral sulphur, have been considered from a different point of view in the present investigation, and the bearing of these results on metabolism in the insane person has now to be discussed. The three constituents under examination have been regarded largely, if not entirely, as products of cellular activity, and as such bear no direct relation to the constituents of the dietary. By the administration of a known dietary and an analysis of the urine, we may gain some insight into the complex processes involved in the metabolism of the normal individual. Similarly, by adopting the same procedure information is obtained of the disturbances associated with pathological conditions. The complex changes occurring in the tissues, involving hydrolytic breakdown, dehydrolytic synthesis, and the extraction of energy we are unable to

follow in detail. Again, complexes may be formed, and as rapidly decomposed, but the products, instead of leaving the organ, may undergo re-synthesis. The kidney, for example, possibly transforms substances which are useful to the organism, and returns them to the circulation. The retention of chlorides, and also the economising action of the body on phosphoric acid, may be cited as examples of such renal activity. Further, we have evidence of the synthesis of hippuric acid from benzoic acid and glycine by the kidney-cells, and it is highly probable that this is not the only synthesis performed by this organ. The instances thus given serve to emphasise the relation of the organs to one another, and the inter-dependence of separate organs. The chemical correlation existing in the body by the presence of certain specific hormones is now well known, owing to the great advancement in recent years of our knowledge in this field of investigation (II). Before the work on this subject, the organs of the body were regarded as being connected together by the nervous system, but we now know that a more intimate relationship exists. The functions of glandular organs, and in particular of the so-called ductless glands, have been studied both from a physiological, and a pathological point of view. From the physiological side, the results of removal of different glands have led observers to seek for some abnormal chemical product in the blood, or the absence of some definite internal secretion. It does not imply, however, that if the removal of a gland from the body is followed by the accumulation of some chemical substance in the blood, this substance is normally formed by the organ. We may with equal justification say that the substance is formed because the organ is not there to destroy it. The observations of pathological changes in these glands have been mainly concerned with morphological changes. These changes do not necessarily imply that the gland is exerting its normal function, since we know of cases of Addison's disease where the suprarenals have been found to be quite normal. If, therefore, we recognise that the ductless glands have different functions to perform, we shall be in a better position to study their influence on metabolism. So far we have obtained much useful information regarding the influence of the sexual organs, the suprarenals, the thyroid, the pituitary, and the thymus glands upon the nervous system, and upon general metabolism.

Besides these organs I am of the opinion that every cell in the body is connected with the regulation of metabolism, and of secretory activity. Just as we find one cell yielding the activator of a ferment, and another cell the ferment itself, so it is possible that the production of internal secretions is a reciprocal action of the different units of the organism. Unfortunately our knowledge of the metabolism of the nerve-cell and of nervous tissue is very limited, and at present we have no information regarding the final products of their activity. By attacking the problem from the two sides, namely, derangement of function and disease of structure, we may arrive at some definite diagnosis. The results recorded above seem to indicate a disturbance of cellular metabolism. The possibility of increasing metabolism in the insane by administering thyroid gland or thyroid extract has already received considerable attention at the hands of Lewis Bruce (12), and his results are very satisfactory. That the ductless glands play a prominent part in diseases of the nervous system is well known, and the symptoms in certain cases of insanity are in accord with these observations. In a recent communication Barton White and Schölberg (13), have recorded details of a case of dementia with a tumour of the pituitary and suprarenals, and their results lend support to this view.

Conclusions.

(1) The excretion of creatinine in the insane is generally subnormal, and the creatinine coefficient is correspondingly low.

(2) The indigo excreted by the insane appears to be derived from sources other than intestinal putrefaction.

(3) The neutral sulphur excretion is low, and points to a diminished cellular activity.

(4) The results indicate a derangement of cell metabolism in certain forms of insanity, and suggest the administration of glandular extracts known to produce an increase in metabolic changes.

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Clinical Notes and Cases.

Abnormal Mental States Associated with Malignant Disease. By HENRY DEVINE, M.D., B.S.Lond., M.R.C.P., Senior Assistant Medical Officer, West Riding Asylum, Wakefield.

A RELATIONSHIP between malignant growths and mental disturbance has been established in a variety of ways. Some writers have approached the subject from a purely general standpoint. Thus Knapp has noted an increased liability to cancer in individuals who show signs of mental instability and has suggested a possible correlation between the two disorders which are both associated with grave metabolic changes. (1) Proceeding on similar lines, Snow instituted an inquiry which revealed a considerable difference of opinion as to the incidence of cancer in the insane, and concluded that its occurrence is relatively rare. (2)

A more important aspect of the subject is that bearing on carcinoma of the brain and the mental symptoms associated therewith. It need only be mentioned here, however, as one

of the possible relations between the two disorders. A full bibliography has been given in a paper by Buckholz. (3) As regards malignant disease generally as a causal factor in insanity it has received but little attention. Kellog (4) mentions it as a rare cause, but does not state the type of mental disorder which may be associated with it.

The majority of writers who have approached the subject regard the mental disturbance arising secondarily to carcinoma as being of the confusional type. Thus Klippel (5) notes a mild delirium at the termination of malignant disease as being not infrequent, and draws attention to the occurrence of confusional states with lucid intervals which may occur with carcinomatous cachexia. He considers that the psychoses of cancer reveal all the characters which are recognised habitually in infectious delirium or in auto-intoxications, and brings cases described by Elzholz as mainly depressive in character under this category. (6) Anglade takes a similar view, and says that it is from the grave disorders of metabolism produced by cancer that it is related to mental disorder. (7) He quotes Neune-dorff, (8) who has observed states of depression interrupted by crises of agitation in such cases. Jacquin (9) describes a case with delusions of persecution and hallucinations associated with malignant growths in the neck, and confusional conditions are also mentioned by Fuhrmann (10) as occurring in the later stages of cancer.

Apart from these delirious conditions, malignant disease of the viscera may at times play a rôle in the production of hypochondriacal ideas. In such cases, the mental symptoms depend upon conæsthetic sensations which in healthy conditions do not rise above the threshold of consciousness, but in diseased states produce internal illusions and ideas of persecution. Thus cancer of the uterus may lead women to believe that they have been violated or are pregnant. Pyloric carcinoma has also been noted as the basis of melancholia and internal illusions. (11) (12).

From the above it will be observed that two main categories of cases have been described. In the first, the psychosis is regarded physically, *i.e.*, from the same standpoint as a typhoid or alcoholic delirium; in the second, the psychosis arises from new and unaccustomed sensations which are allegorised into delusions.

There is yet another side to the question. Savage observes, "Concealment of cancer, it may be for years, added to worry, pains, exhaustion and sleeplessness, has often paved the way for an attack of melancholia in women." (13) This is a recognition of the fact that not only is malignant disease productive of symptoms of auto-intoxication, but it is also one form of mental stress. The malady is a dreaded one; it threatens the very existence, and when objectively obvious it must constitute a particularly painful emotional complex in the mind of the sufferer. This being the case, as in any other painful experience, some form of mental adjustment must take place, the particular form which the adjustment takes varying according to the individual tendency. The victim may arrange his affairs with a view to a speedy death, he may consult a doctor or christian scientist with hope of cure, or he may disregard the trouble altogether and deceive himself that there is nothing wrong. Such conduct is regarded as more or less normal. On the other hand, he may develop a series of ideas and reactions which are of such a nature as to be regarded as abnormal or insane. In either case it is possible to trace a psychological continuity between the painful experience and the various reactions which may occur.

It is this mental point of view which it is the main purpose of this paper to consider. In the three cases detailed below each patient was suffering from cancer of the breast, and each developed a different form of insanity in consequence of this condition. An endeavour will be made to elicit the meaning and significance of each psychosis and to discover any features which may be common to the three.

CASE I.—Miss B—, æt. 62, was admitted to Long Grove Asylum on July 27th, 1910. She was suffering from an advanced cancerous tumour of the right breast. The skin was extensively ulcerated and invaded by small nodules of growth. The tumour was adherent to the underlying structures, and large masses of glands were present in both axillæ. The general condition was poor.

Her relatives stated that for some years they had seen but little of the patient. In character she had always been eccentric, independent, and self-willed, avoiding much communication with her friends. She lived by herself in lodgings, and earned a livelihood by dressmaking. It had been apparent for some time that she had experienced difficulty in making both ends meet, and the state of her room, which was disordered, neglected, and poverty-stricken, indicated that she had really become incapable of looking after herself. In spite of this she

had displayed resentment at any attempt at interference or advice. The cancer had been developing for some months, and some ladies had induced her to go to a hospital on one occasion, but no operative measures had been proposed. She had been sent to the asylum because she persisted in making accusations of ill-treatment against her landlady, alleging that the latter had caused the trouble in her breast.

As regards her mental state on admission, she was moderately well-educated and intelligent, free from confusion, correctly orientated, and able to furnish a connected story about herself. She confessed that for the last few years she had found increasing difficulty in obtaining employment. Her clients had one by one ceased to require her services, though she was quite sure in her mind that her capacity for giving satisfaction had in no way diminished as the result of her increasing years. She herself felt as strong and capable as ever, but she thought people must be against her. For some time she had fancied some of her patrons had acted peculiarly towards her, and when her difficulties went on increasing she became convinced that they must be spreading some discreditable story about her. It seemed to her as if there were a regular plot to prevent her from obtaining work. It was about three months ago that she first noticed pain in the breast. She did not think of looking at the part to see what was the matter, as she said, "I did not worry about it at first; I was too busy with other matters; when I undressed at night I did not trouble to notice if there was any swelling." After a while, the pain seemed to come on when her landlady was near her, and she thought the latter must be pinching her. When the pain persisted with greater frequency and intensity, she thought her landlady must be exerting some kind of "influence" to cause it, even when she was in another room. At length she taxed her persecutor with causing her this annoyance, but she made light of the matter, and denied that she had touched her at all. Her neighbours advised her to see a doctor, and told her she had a tumour, but she knew there was nothing of that sort. There was just a little inflammation, as might be expected from continuous pinching.

After being in the asylum for a few days, the patient began to accuse the nurses and also her fellow-patients of pinching her. She would point out the delinquents to me and beg me to make them desist. It was evident that she suffered a great deal, and every twinge of pain would arouse a protest. Her belief was extremely firm, and all conversation on the subject led to argument in a circle. All she wanted was to go out of the institution. She was perfectly well, and had urgent business affairs to attend to. Daily conversations such as the following were usual:

"There is nothing the matter with my breast. It is a little red and swollen, but that will get well when I go out and these people stop pinching me."

"But how can anyone pinch you when they are not near?"

"I don't know how they do it; I wish I did. It must be possible for people to do such things. It isn't a question of whether I believe it or not, because I can feel them doing it; it must be so."

"Couldn't there be some other explanation of your pain?"

"How could there be? Why, you yourself were pinching me yesterday."

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I could feel it myself, so what other explanation could be given? You know yourself you did it."

"Might it not be a cancerous growth?"

"Oh, no, it couldn't be that; it's hereditary, too, and there is none in our family. It could not come of itself. Besides, it was quite well until my landlady began to pinch me. If you would let me go out I shall be all right; it's the pinching which is making me bad." Then she added, "I never thought about cancer. Some ladies who looked at it did say something about a growth, but I took no notice of that; I was not interested in such things."

Thus, one could get no further in the way of argument. She knew she was pinched, she was quite well before this commenced, and there was nothing more to be said.

At times, it is true, she would show some inconsistency. Sometimes she would beg me to do something for her; the swelling was getting larger, and perhaps some medicine would do it good.

It seemed as if she realised then what was actually the matter, but in a few minutes her delusion would again come to the surface and the old arguments ensue.

At present she is extremely weak and emaciated, the growth has extended, and presents a peculiarly unpleasant appearance owing to the extreme ulceration of the skin. She still, however, ascribes it to the same cause.

CASE 2.—Mrs. C—, æt. 40, was admitted to Long Grove Asylum on October 11th, 1907. She was suffering from a typical cancer of the left breast, adherent both to the skin and chest-wall, with enlargement of the left axillary glands. She was in poor health and somewhat emaciated.

The husband stated that the growth had been developing for about a year, but the patient had persistently refused to consult a doctor, maintaining that there was nothing at all the matter with her. It was evident to her friends, however, that the growth caused her considerable anxiety, though she was reluctant to converse about it, and displayed considerable irritation if the subject of medical interference was broached. Eventually she became so depressed, agitated, and sleepless that she became difficult to control, and she was therefore sent to the asylum.

Previous to the appearance of the growth, no abnormal mental symptoms had been observed, but her disposition had always been somewhat gloomy, reserved, and obstinate. No neurotic family history was obtained.

On admission, she was in a state of diffuse anxiety and apprehension. There was no confusion or disorientation, but she was filled with morbid fears about her breast. She felt convinced that the doctors were intending to operate upon her, the idea evidently causing her extreme terror. At times she imagined she could hear the nurses saying that she was to be operated upon the following day.

This state of anxiety persisted, but she employed herself industriously, indeed, almost feverishly, always manifesting a desire to be on the move and doing something.

On November 8th a note was made stating that her fears appeared to be less marked, and she was working in the laundry.

December 16th: Seemed more agitated again, and is convinced that something is going to be done to the breast.

January 1st, 1908: A great deal worse. Extremely restless and agitated. Is now filled with the idea that the doctors want to remove her tongue, and she thinks some disaster is impending.

She walks about unceasingly in a restless and tremulous state, appearing quite unable to keep still. When spoken to shakes her head, and looks terrified and miserable. Requires feeding by hand, dressing, etc.

This state of anxiety was observed gradually to subside, but the patient became more inaccessible and solitary. She never seemed to brighten up, and though she still employed herself, barely replied to questions, and seemed rather suspicious. By degrees this apparent apathy increased. Instead of working she would sit listlessly about, associating with no one, and eventually ceasing even to look after herself.

The following note was made on October 10th, 1908: Information has to be dragged out of the patient. She will only give monosyllabic replies after considerable hesitation. The memory does not appear to be impaired, however, and she is fully aware of her position and the nature of her environment. Her whole attitude is one of active negativism. She makes no attempt to keep herself clean, and offers an active resistance to any necessary attentions. When questioned about her conduct, she denies emphatically that it is such as described. Thus, when asked why she does not work, dress herself, and the like, she replies in a somewhat surprised tone, "But I do work; it is nice to work; I like working. Of course I dress myself. How could I be dressed otherwise? There is no one to help me." This was said a few minutes after a tussle with the nurses to get her clothes on. Any reference to her state of health provoked similar negativistic replies. Thus, asked how she was, replied, "Perfectly well; there is nothing at all the matter with me." In regard to the breast, she said, "It is quite well; of course I do not get any pain in it; why should I? There is nothing the matter." "Why should I worry about it? There is no need to do so; it is quite well. I know of nothing wrong with it."

This state of mind remained quite unchanged, though her physical condition gradually deteriorated. She became weaker, lost flesh, and showed symptoms indicative of secondary deposits in the lungs. Occasionally her mask-like indifference was disturbed by brief periods of terror. She would start back and catch hold of the nurses, saying there were some men concealed near her, and she could hear them threatening to pull out her tongue and take her life.

On January 18th, 1910, the patient showed signs of collapse, and became extremely dyspnoeic. There was evidence of fluid in the chest. The general attitude had in no way changed, however. All she wanted was to be left alone; there was nothing the matter; she did not care for all this fuss, etc. Shortly afterwards she died, the *post-mortem* examination revealing extensive growths in both lungs.

CASE 3.—Mrs. D— was admitted to the Wakefield Asylum on February 1st, 1911. There was an advanced carcinoma of the left breast. The nipple was contracted and the whole breast invaded by growth. The skin was adherent and the underlying structures invaded. Numerous small, hard glands were palpable in the neck, and the skin around the

growth was infiltrated with nodules of varying size. The general condition was poor. She was moderately well nourished but weak. The face was haggard and the eyes sunken. Considerable œdema of left arm and hand was noted.

The husband, who furnished the history, stated that the patient has always been a most devoted wife and mother. Since their marriage some years ago their lot had been attended with much misfortune, and at times they had been reduced to considerable straits owing to poverty and inability to obtain work. For some time he had been laid up with sciatica, and his wife had with some difficulty kept the home together. They had four children living.

In spite of all these troubles his wife had always seemed to keep cheerful, and the home, though poor, was clean, and the children well looked after. Nine months ago the patient had her last baby, and about this time the growth in the breast began to develop. Recently she had attended a hospital, but the disease was too far advanced to justify operative measures. With some difficulty the patient was persuaded to go to bed as she was obviously in a weak state. After a few days, in spite of protests, she insisted on getting up to attend to her household affairs. Shortly afterwards she began to show signs of excitement and delirium, so that it became necessary to remove her to the asylum.

On admission, she was in a condition of joyous excitement and elation. She was in a constant state of psycho-motor unrest, rhyming, chanting and singing hymns and litanies, evidently ecstatically happy. It was impossible to gain her attention, or obtain anything like relevant replies to questions.

The next day she was still restless and morbidly exalted, but was able to give more or less coherent replies. She showed defective orientation and had no realisation of the nature of her surroundings, but she remembered being brought to the institution the day before, and could relate an account of recent events in temporal sequence. She mistook me for a Dr. B— who had previously attended the family, and described how I had cured her husband of sciatica, events which happened when I came to the house, and so on.

The substance of her story at this time was as follows: For a long time she had been very unhappy and "worrying" much about her breast. Though she tried to fight against it she had felt an increasing weakness, and she began to feel that she was going to leave her husband and little ones to struggle on alone. While she was being attended by a doctor, unknown to him she was adopting other methods of treatment. She had obtained some holy water from St. Winifred's Well, and employed this daily to bathe her breast. Being a fervent Catholic she felt that perhaps if she had sufficient faith this water might effect a cure. As she wished so it had happened. One day while baking some cakes she suddenly felt that everything had changed. The pain seemed to vanish, her worry and anxiety ceased, and a great joy stole over her. She realised that her prayers had been answered, and the disease cured. She felt unable to contain herself, and then remembers being taken to the asylum.

The patient assured me that she was now perfectly well, and her only wish was to go home and look after the children. This delirious con-

dition only lasted for a few days, and the patient gradually became quiet and composed, regaining her normal mental condition. She was able to smile at her former mistakes of identity, and excused her error by saying that she had been rather "run-down," and that I really was in some ways like Dr. B—. As regards the holy water, she was rather shy about referring to the matter, and explained that perhaps it had done her some good, and that her arm was certainly less swollen. She still made brave attempts to feel cheerful, and said that though she felt a little weak she thought she was quite fit to go home and resume her household duties. The breast was much better, she had given up worrying about that now, and while she realised that there would always be a scar, yet she thought it would not trouble her again, or cause her further pain.⁽¹⁾

It will be seen from the above description that while the same ætiological factor was common to these three cases, yet they present a widely differing clinical picture. The first is an example of what Friedmann has called "endogenous paranoia," *i.e.*, a circumscribed system of persecutory delusions, showing no tendency to spread into other fields, and dependent on a particular mental stress (14). The second would probably be best described under the heading of agitated melancholia, and the third as acute mania or possibly confusional insanity.

In spite of these differences, however, there is one feature which stands out prominently as being common to each case, *viz.*, a complete inability of the patients to recognise that they were suffering from any physical malady whatsoever. It is almost true to say that the several psychoses served the purpose of explaining away what was so patently obvious to anyone but the individuals concerned. Such a state of mind cannot fail to be of some significance, and merits further notice.

Brief reflection will show that this evasive attitude is by no means a reaction peculiar to the insane, but might be described as a fundamental attribute of human nature. Instead of an energetic adjustment to a painful experience, involving a bold recognition of facts as they actually exist, there is often a tendency to take the line of least resistance, to evade the real issues, to ignore the experience as it were, and to attempt to banish it from consciousness altogether. Those who are acquainted with the writings of Freud will recognise this as the principle which he has enunciated as being operative in the genesis of neurotic symptoms. It is a principle which is capable of wide application, and one has only to turn to a

consideration of the attitude of individuals suffering from some physical malady to find abundant examples of its existence.

How often does one observe a forced gaiety or a reiterated declaration of well-being in those who are afflicted with what may be a mortal malady? Such a concealing of the obvious is well recognised in the routine treatment of the sick. They are constantly assured that they are making satisfactory progress, that they are looking better and so on, even when the facts point to an entirely different state of affairs. Not only are such optimistic defences erected in the mind of the sufferer with the purpose of suppressing his painful complex, but also quite contrary reactions which have a similar biological significance. Instead of optimism, it is not unusual to observe a condition of reticence, suspicion, and outbursts of irritability in those who nourish secret fears as to their well-being. Maeder (15) points out that one method adopted in the suppression of a painful complex is by its *isolation*, *i.e.*, by shutting off all associative connections which might arouse it into activity. If by chance the secret fear is aroused by some casual reference, a series of defensive reactions are at once brought into play. This will be illustrated by the following simple incident :

A doctor was observed by his family to be in a very unusual frame of mind. To any of the harmless pleasantries which frequently occur in a community on terms of familiarity he responded by outbursts of anger and irritability, protesting that his friends' conduct was in doubtful taste and the like, and during the day he gradually relapsed into a thoroughly persecuted state in which he would barely speak at all.

A little investigation into an earlier experience of the day made his abnormal conduct clear. It appeared that he had noticed a patient with a swollen eye, the result of a mosquito bite, and he had jokingly told her that she had quite spoilt her beauty. She had replied in a similar strain that he himself did not appear very well and also looked "a bit puffy about the eyes." Upon this the doctor displayed extreme annoyance and walked away abruptly, thinking that the patient had taken an unpardonable liberty in speaking as she did, and regarding himself as a much injured party. A harmless remark had therefore resulted in an apparently inexplicable state of persecution and irritability. The actual explanation, however, lay in the fact that some eighteen years previously he had been a

little out of sorts and was found to be suffering from transient albuminuria. This had become to him a source of psychic trauma, and remained at the back of his mind as an unassimilated emotional complex which the reference to "puffy eyes" had aroused into activity.

Now the point which needs emphasis in this incident is the following: When the complex was touched the intellectual contents were not fully brought into consciousness but merely the emotional state associated with it. This affect attached itself to various ideas of a persecutory nature, all of which served to keep the complex concealed at the back of the mind. The primary mental disturbance he ascribed to natural and justifiable annoyance at the patient's remark, and in the same way for the rest of the day he regarded himself as a much persecuted individual. By ascribing his disturbed state of mind to external circumstances he was really seeking to suppress the painful thought of his own possibly imperfect state of health. These persecutory ideas were therefore methods of defence against the encroachment of the complex into full consciousness.

From the above it will be seen that in normal life it is quite usual to observe irrational optimism, irritability, and vaguely delusional persecutory states arising out of partially suppressed preoccupations as to the physical condition. In the light of such observations, the origin of the three psychoses, which have been detailed, will become more understandable.

To comprehend Miss B—'s later state of mind, her earlier history must be considered. The facts, as she stated them, were that owing to the spite and persecution of her employers she had been unable to obtain work and had gradually sunk into considerable straits. The facts were actually, however, quite different. Owing to age and incompetence she had become incapable of earning a living, and could find no one who required her services. No amount of argument would convince her of this, and for a very good reason; she did not wish to admit that she was past work—the thought was too painful; she was incapable of assimilating such a notion, and therefore she turned away from facts as they existed and ascribed her misfortunes to external influences. Such an attitude is common enough. The incompetent person is always ready to regard himself as a man with a grievance, because by such ideas he

avoids looking into his own mind and discovering the painful fact that his failure results from his own inefficiency.

The delusions which Miss B— developed in respect to the growth have a similar pathogenesis to the antecedent persecutory ideas.

It is very striking that an otherwise intelligent person could fail to realise the nature of a condition which was so objectively obvious. One knows that the question of malignant disease occupies a prominent position in the minds of the majority of women. Any trivial swelling of the breast or irregularity of menstruation is liable to produce a state of anxiety and distress, and not infrequently a definite neurosis.

A lady, æt. 47, complained that for some time she was filled with morbid apprehensions and felt as if some disaster were about to overwhelm her. In addition she found difficulty in performing even simple household duties, she had a dread of going out, avoided society, and felt unable to adapt herself to any new or unaccustomed situation. The condition was obviously one of ordinary psychasthenia.

A little investigation showed, though she confessed it with resistance and hesitation, that she had recently heard of several friends who had been operated upon for cancer of the uterus, and associating this with some irregularity of menstruation, she had feared that she had been suffering from the same disease. This concealed complex had therefore been instrumental in producing the various neurotic symptoms which have been indicated. When it was explained that her irregular periods were due to a physiological epoch, and that since she had had no children the possibility of cancer was remote, the psychasthenic reactions were largely ameliorated.

It is very certain that when Miss B— said she had not thought about cancer, she was not interested in such things, she was too busy to look at the breast, etc., she was really only trying to conceal her fears.

She did not *want* to face a dreaded possibility ; she wished to avoid seeing anything which might arouse her suspicions, and she preferred not to recognise the existence of that which would cause her mental pain. Then by ascribing her condition to external influences she evaded a far more painful truth. As long as she retained her delusional belief she felt that if only the annoyance would cease she would again be quite well and

enabled to take up the threads of her career. If her belief had failed her there was nothing to face but inevitable disaster and a speedy death. The delusion was, therefore, a means of defence, a method of shutting out reality from her mind.

As regards Case 2, it will be seen that for a time Mrs. C— showed the reactions to her growth which often occur in normal life. She was irritable, suspicious, and angry at any reference to her complaint. She wanted to ignore the subject, shut it out of her life. Her fears were too strong, however, and a state of mental conflict ensued, characterised by morbid apprehension and a fear that she was about to be operated upon. For a time she tried to “work out” her affect by a feverish activity (*derivation* of the complex), but, being unsuccessful, she developed a condition of inaccessibility and negativism. By denying the existence of the obvious she would appear to have crushed her fears, but only at the expenditure of such an amount of mental energy as to destroy her entire utility, and cause her to lead a purely vegetative existence. One further feature of interest deserves mention. While the patient had succeeded in suppressing out of her conscious life the morbid fears which beset her, the complex at times intruded itself into activity in the form of auditory hallucinations in which she heard “voices” threatening to destroy her. The mechanism by which suppressed relics of the normal personality appear as hallucinations has been previously mentioned by Jung (16).

The third case requires but little comment; its significance is obvious. It affords a striking example of what Freud has called a “defence-neurosis” (17). For many months the patient had been struggling against increasing pain and weakness. She refused to give way because there was the home to which she was so devoted to look after. When reality became too hard, her circumstances too unbearable, all her subconscious wishes became active, and she found refuge in a state of delirium, a condition of partial dissociation. All her fears had vanished, her health had been restored, and a period of joy and thankfulness had become inaugurated.

As she emerged again into a normal condition reality once more stared her in the face, and beneath her pathetic attempt to look at the bright side of things it was possible to detect the existence of an ever-present fear and dread of the inevitable.

These three cases, then, afford instances of methods by which certain types of mental organisation react to one variety of mutual stress. They bring to mind the condition known as *spes phthisica*, and the states of suspicion, persecution and reticence which Clouston has described as occurring in another bodily disease—pulmonary tuberculosis (18).

While they differ so much clinically it has been shown that the morbid optimism, the persecutory delusions, and the irrational negativism all arise out of a fundamental trait of human nature. They may all be described as pathological evasions, and differ only in degree from similar reactions in normal people.

One comment of a general nature suggests itself from these considerations. While the dissemination of knowledge in regard to the early symptoms of cancer is of indisputable value, it is frequently the principle of evasion rather than the lack of knowledge which prevents individuals from seeking advice. However obvious their symptoms may be, they prefer to erect defences in their mind which serve to banish their fears. As long as human nature remains the same, there will always be those who hug their delusions up to the end rather than take measures which involve looking facts in the face and hearing those fears confirmed which they have attempted to hide from themselves and others.

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(1) I am indebted to Dr. C. Hubert Bond for permission to publish Cases 1 and 2, and to Dr. J. Shaw Bolton for Case 3.

Recent Medico-Legal Cases.

REPORTED BY DR. MERCIER.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

THE PROTECTIVE SECTION OF THE LUNACY ACT, 1890.

A VERY important decision on this section of the Act of 1890 was delivered by the Court of Appeal on January 12th. The facts were that Dr. W. L. Griffiths sued his father, Dr. T. D. Griffiths, in respect of the presentation of a petition for reception order; and Dr. T. D. Griffiths had applied to a judge in chambers (Mr. Justice Lush) to stay the action, on the ground authorised by Section 330, that there was no reasonable ground for alleging want of good faith or reasonable care. Mr. Justice Lush declined to make the order, and from his refusal Dr. T. D. Griffiths appealed to the Court of Appeal, which gave judgment in his favour in the following terms:

Judgment.

Lord Justice Fletcher Moulton: In deciding the question before the court, the most important thing in the first place is to get a clear idea of the question we have to decide. It is common ground

that it matters not whether the plaintiff was or was not insane at the time he was sent to the asylum, but it is suggested that what we have to decide is whether or not there would have been a case to leave to the jury if there had been a trial, and the evidence which had been given at that trial was that which we have before us in the affidavits. In my opinion the learned judge at chambers practically acted on that view, and I think that that view is erroneous. Section 330 of the Act commences by an enactment which on the best construction I think can be given to its language, makes it a defence to persons who have signed or carried out or done any act, "with a view to sign or carry out an order purporting to be a reception order, or any report or certificate purporting to be a report or certificate under this Act, or does anything in pursuance of this Act, shall not be liable to any civil or criminal proceedings whether on the ground of want of jurisdiction or on any other ground if such person has acted in good faith and with reasonable care." That provision was obviously to protect persons who were doing the very thankless task of taking steps to put persons, whom they thought would be a danger to themselves and to the public, under proper restraint. It is always a very disagreeable thing to do. It is a thing so obvious in proper cases for the benefit of the public and for the benefit of the patient himself that it becomes a duty to do it in proper cases, and this Act was deliberately passed by the Legislature to protect persons who, acting under such a sense of duty, had to take the necessary steps required by law. The Legislature, very properly to my mind, realised, although they had made it a defence if the person had acted in good faith and with reasonable care, that that would not be adequate to prevent them being persecuted by legal proceedings which might be very costly and very trying, and that it would be a very insufficient protection if all that the Act provided for was success in an action brought against them or in criminal proceedings brought against them. Consequently it gave to the court not only a power, but, to my mind, a duty to entertain a summary application asking that the proceedings should be stayed, and that the persons attacked should not be obliged to go through the whole course of an action up to trial. Then the section says this: "Such proceedings may, upon summary application to the High Court or judge thereof, be stayed upon such terms as to costs and otherwise as the court or judge may think fit, if the court or judge is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care."

This is an application under those provisions, and if we are satisfied that there is no reasonable ground for alleging want of good faith or reasonable care, we may, and I think that means in all the circumstances that we ought, to stay the proceedings. This being a summary application, it is quite obvious the evidence must be brought before us in a different way to that in which evidence is brought before a court where there is a trial by judge and jury. It almost necessarily has to be brought before the court by affidavits upon which there may or may not be cross-examination, but it is clear that the Act contemplates we should decide whether or not we are satisfied that there is no reasonable ground for alleging want of good faith or reasonable care upon evidence brought before us in the way in which evidence in summary pro-

ceedings usually is brought before the court. Therefore it is not for us to say that because this is a case which could not be withdrawn from the jury, therefore we will not act; we have to take this evidence put before us as a tribunal appointed to decide this issue, and if the evidence is sufficient to satisfy us, we must decide it.

Now, I do not conceive for myself that the whole of the evidence before us can be truth. No doubt a court which has to decide affidavit evidence in which there is a conflict of evidence is often put into a position of difficulty, but that is not sufficient, to my mind, to justify us in saying that we will not examine the evidence and see whether there is sufficient to satisfy us on this issue. Although I do not pretend to be able to reconcile all the evidence, and although I am not going to state with regard to particular witnesses whether or not I accept or do not accept their evidence, I think there is abundance of evidence here to justify the court in coming to the conclusions that there is no reasonable ground for alleging want of good faith or reasonable care.

In the first instance, let us consider what is common ground between the parties. I think, in the first instance, it is common ground between the parties that the plaintiff had at various times in his life been addicted to the cocaine habit to an extent which made him at times not responsible for his actions. I think that the proper conclusion to be drawn from it is that at times he behaved in a way which was not compatible with sanity, and that it reduced him to a condition in which he was a danger to himself, and might well be a danger to other persons I have no doubt. It is also common ground that the acute symptoms which follow from an indulgence in cocaine are temporary in their character, that they may pass away, and that there may be an interval of comparative self-control, but that comparative self-control does not in any way indicate that the influence of the habit has passed away, or that because a man has self-control he will be able to prevent himself from indulging in cocaine to such an extent that the fits come back. Now that is common ground between the parties, and I think we can go, without going into controversial matters, much further. I confess I attach very considerable weight to what is said in an affidavit of a medical man put in by the plaintiff himself. I refer to the third paragraph of Dr. Stoddart's affidavit, in which he says he saw the plaintiff in November, 1910. Then he says: "The said William Layard Griffiths informed me that from August 1909, to February 1910, he had been in the habit of using cocaine. He also told me that he had used cocaine on previous occasions." Now, I conclude from that, and it seems to me also to be common ground between the parties, that from and after the time the plaintiff was put in the asylum he ceased to use cocaine; at all events, there is no evidence that he used cocaine after, and therefore I am not surprised to find, considering his age, that he is found to be in good health in November. But here is an admission by him that from August, 1909, to February, 1910, he was in the habit of using it, which exactly fits in with the evidence of the father with regard to his behaviour. Next, I find no reason for doubting that the entries made in the books of the asylum were otherwise than *bonâ fide*—both sides seem to refer to them—and I am quite satisfied that I am doing right in attaching weight to them. What do I find there? I

find that the day after he was brought there the entry is this: "Had a quiet time and slept well, was drowsy soon after admission, and slept on the sofa most of the evening, said he had disagreeable nightmare during the night and saw all kinds of things. He admits to having taken over 40 grains of cocaine in twenty-four hours." So that it is clear he took very large doses immediately before he was brought to the asylum. Now the next thing which impresses me in the matter which is not in controversy is the evidence of Dr. Brook with regard to the interview which he had when he went to the plaintiff's bedroom. He and the father had come to see the plaintiff and found that the plaintiff was upstairs in bed. The father remained downstairs, and Dr. Brook went upstairs, and he describes the man lying with his face to the wall. He spoke to him about his habit. The language was extremely forcible. He urged him to make an attempt to consent to be put in an inebriates' home or in a nursing asylum in order that he might receive proper treatment against the drug. Getting no reply he asked the plaintiff what he was going to do. He said, "I am going to lie here until I have energy enough to get up and buy some more cocaine." Now here is a man, a medical man, to whom a friend had come to remonstrate with him as to the danger of over-indulgence in this drug. The answer he gets is that which I have stated and that is admitted, practically admitted, by the plaintiff, and all he said was he did it out of petulance. In my opinion, weighing all these things, I cannot help coming to the conclusion that the man indulged to a dangerous extent in this drug, and at the time he was in a state in which at any moment he might be a danger to himself and a danger to others, and he had no self-control to prevent himself from continuing the practice. Starting with that, if I may say so, as the atmosphere through which we must look at the statements in the affidavits, I turn to the father's account, and I ask myself, not only what does he say, but what do the affidavits show his behaviour was in relation to his son during the long period when the son indulged in this habit of taking cocaine? I cannot help thinking that to my mind it is preposterous to say that in the ordinary sense of the word there is the slightest reasonable ground, or any reasonable ground, for suggesting bad faith on the part of the father. It appears to me that for a course of years he had been borne down with anxiety in regard to his son's conduct, and full of fears as to his safety, and as to the safety of those around him, by reason of his determined indulgence in this drug. Well, it is quite true that mere want of good faith in the ordinary sense of the word, perhaps, does not coincide with the legal issue of want of good faith. It is possible you may act, although with the best of intentions, in a way in which legally you would be held to be guilty of want of good faith, but I will not enter into that question, because, when I come to the time far back when the father acted, I can see nothing but anxiety with regard to his son, leading him to act in the way in which, as a medical man of great experience, he thought he was bound to act. In this respect I find that he had the opinion of four medical men, all of whom knew the plaintiff well, and all of whom say that they were prepared to certify him as an insane man at the time. Two of them actually did certify him, and two were perfectly ready to certify him, only they thought

as the person to be put in the asylum was a medical man perhaps they were rather more cautious, and, as they were certifying that one of their own profession was unfit to be at liberty, they thought there ought to be four certificates. The father thought it was not wise to depart from the statutory obligation of two, but they were all prepared to do this. The matters which led them to that conclusion appear in the affidavits. I cannot help thinking that they were adequate, but, whether they were adequate or not, I am perfectly satisfied that all those four medical men, thinking carefully of it, came to the conclusion that with their knowledge and skill it was a case in which they could certify the person as insane. The father had a more intimate knowledge of his son's state probably than they had, but the evidence convinces me that the more intimate his knowledge the more hopeless he must have felt the case and the more dangerous, because he must have known all that had happened in the past in South Africa, and he had had the experience of what had happened very shortly before when his son came home.

I must say that in this case, coming to the conclusion as I do that the son almost confessedly had during this period habitually indulged in cocaine, I think we are bound to take the father's account of what passed in the interview when his son came to his house in preference to what the son says, because it is well known that indulgence in cocaine leads both to hallucinations and to inaccuracy.

Under these circumstances I come to the conclusion that I am satisfied that there is no reasonable ground for alleging want of good faith or reasonable care in the father in presenting this petition, and I think we should be shirking the duty which is put upon us by the statute if we were to hesitate to allow this appeal to stay the proceedings in this action.

Lord Justice Buckley: I agree with all that has been said by the Lord Justice.

The cardinal fact in this case is not in any way in dispute between the parties—I mean the fact that the plaintiff had for many years been addicted to the cocaine habit; that he had taken large and excessive doses of cocaine, and I think that the effect of the evidence is that such an indulgence in that habit is one which leads to insanity, short, no doubt, in its duration, but a state of things under which for a time a man is not responsible for his actions, and he may well be a danger to himself and others. Now the issue which we have to try is not whether on February 10th the plaintiff was in that condition or not; the question we have to try is whether this defendant—this father—was acting upon the footing that he was in that condition not responsible for his actions. We are satisfied that there is no reasonable ground for alleging want of good faith or reasonable care.

I am not going to travel through the facts again. I am abundantly satisfied by the evidence in the case that the action of the father was taken in perfectly good faith. This evidently has been a matter of great family trouble for a great number of years. The question what was to be done with this unfortunate man and the habit which he had acquired was no doubt one of great anxiety to his father. Under these circumstances he put himself into communication with medical gentlemen, who signed a certificate, with the result that the plaintiff was

removed to the asylum. I am satisfied that there is no reasonable ground for alleging want of good faith or reasonable care on his part. That is the only issue which we have to try, and arriving at that conclusion, I think, differing in that matter from the learned judge below, this appeal must be allowed.

I am not even sure that the learned judge put the proper question to himself. At the beginning of his judgment he made it rather a question of the investigation of sanity or insanity. I do not think he meant to rest upon that. He said that only disposed of that question, and then he went on to deal with the other. What he said was, "It is a question whether I ought to be satisfied that there is reasonable ground that the defendant was acting with due care." He has stated it rather the wrong way round. The question is whether we are satisfied there is no reasonable ground for alleging want of good faith. Well, I think there is no reasonable ground, and I think the appeal must be allowed.

Mr. Neilson: The appeal will be allowed and the action stayed as against the defendant Griffiths, and the costs, I submit, will be paid here and below by the plaintiff.

Lord Justice Fletcher Moulton: Yes.

Mr. Neilson: If your Lordship pleases.

Ever since this clause in the Act of 1889, from which it was incorporated into the Act of 1890, has been in operation, medical practitioners practising in lunacy have complained that its force was so whittled away by the practice of judges in chambers, as to deprive it of much of its protective character. In the first case in which a judge in chambers was asked to stay an action under the authority of Section 330, he decided that the onus of showing a *prima facie* case of want of reasonable care or want of good faith did not lie on the plaintiff in the main action. The defendant, who sought to have the action stayed, became, with respect to the application for a stay, in the position of a plaintiff, and must prove his case. It is for him, now that he is in the position of plaintiff, to prove, negatively, that there is no reasonable ground for alleging want of good faith or of reasonable care, not for the plaintiff in the main action to show, affirmatively, that there is reasonable ground for such an allegation. This has been felt to be somewhat of a hardship on the defendant in the main action. It would seem to be a greater protection to the defendant if the plaintiff were compelled to establish his case, that there was a reasonable ground for the allegation. The rule rests, however, in a settled principle of law, which is not likely to be altered because in a particular case it is felt to produce hardship; and whatever hardship may have been produced by it

in the past, will certainly be much mitigated by the judgment of the Court of Appeal set forth at length above. The rule as to onus of proof was stated by the Court in emphatic terms, and it is noteworthy that it is on the very ground that the judge in chambers had wrongly apportioned the burden of proof, that Lord Justice Buckley agreed that the decision adverse to the defendant ought to be reversed. The question put to himself by Mr. Justice Lush in chambers was "whether I ought to be satisfied that there is reasonable ground that the defendant was acting with due care." This, said Lord Justice Buckley, was stating it the wrong way round. "The question is whether we are satisfied there is no reasonable ground for alleging want of good faith." The fact, as shown by this appeal, that the existing law gives a better protection than the law as we should have liked it to be, should make us doubtful of our competence as amateur legislators, or reformers of the law.

The judgment is a very favourable one to the defence of such actions, and is favourable in several different respects.

In the first place, it establishes, as has just been shown, that the placing of the burden of proof on the defence in the proceedings in chambers, is no disadvantage to the defence, but rather the contrary.

In the second place, it establishes that, as in so many other statutes, the word "may" in the section is to be interpreted to mean "shall." It gives to the Court, in Lord Justice Fletcher Moulton's opinion, not only a power, but a duty, to stay these actions if the conditions justifying the stay are fulfilled.

In the third place, it was suggested that what the judge in chambers had to decide, was whether or not there would have been a case to leave to the jury if there had been a trial. This view was held to be erroneous. The protection afforded by the clause was decided to be more ample than this. "It is not for me to say that because this is a case that could not have been withdrawn from a jury, therefore we will not act; we have to take the evidence put before us as a tribunal appointed to decide this issue; and, if the evidence is sufficient to satisfy us, we must decide it."

In the fourth place, the judgment establishes in law a doctrine that is not always admitted even by alienist physi-

cians, in spite of the humble, if strenuous, attempts that I have made for many years to insist on its acceptance—the doctrine that insanity is insanity, even if it is due to an assignable cause, and even if it is temporary in duration. The insanity of the plaintiff was due to the cocaine habit ; it fluctuated with this habit, and recovered when the habit was discontinued ; but as long as the plaintiff was under the influence of cocaine, he was insane, and a proper person to be detained, etc. Now what is true of cocaine, is true of any and every other insanity-producing agent. It is true of alcohol for instance. Everyone admits that the insanity produced by long-continued drunkenness is insanity ; but I have been met with amazement and protest when I have contended that the drunken man, as long and as far as he is drunk, is so long and so far insane. Still more incredulity has been expressed at the doctrine that the delirium of fever is insanity. Whether this last position would be good in law I do not know, but in the face of this judgment it can scarcely be contested that the insanity of drunkenness, of morphia taking, and of other drugs, is insanity in the eye of the law, and justifies, in appropriate cases, proceedings in lunacy. It is a very important pronouncement, and one that should be laid to heart and acted on. Nothing is more frequent than for medical men to refuse to certify as insane, persons who act insanely when drunk, but who have intervals of sobriety in which they are sane. The plea that a lunatic cannot be certified if he is “only drunk” will no longer avail. A lunatic is a lunatic, whatever his lunacy is due to.

In the fifth respect, in which the judgment is an advance on current notions, it is perhaps less satisfactory. It does not go far enough. But this was a matter in which the *dictum* was *obiter* merely, and the matter was scarcely formally before the court. The court found that the plaintiff was a danger to himself and a danger to others, and seemed to infer, though it did not directly state, that it was on these grounds justifiable to certify him as a lunatic. The point was not directly before the court, which had not to determine whether the certificate was proper and justified, but only that there was no reasonable ground for saying that it was done negligently or in bad faith. But from the *obiter dictum* it may be gathered that the Court of Appeal sanctions the view, that a person may be placed under control because he is a danger to himself, and because “he had

no self-control to prevent himself from continuing the practice " of taking cocaine habitually. It seems clear from this that a person who has not the self-control to prevent himself from continuing the practice of drinking alcohol may, on that ground, be certified as a lunatic. The Lord Justice, in delivering this dictum, was referring only to a part of the case and to the facts before him. Though it is extremely satisfactory as far as it goes, and shows that the detention, as lunatics, of persons who have rendered themselves temporarily insane by taking drugs—under which alcohol must be included—is justifiable in law, it would be very unsafe to conclude that it is necessary for a person to be a danger to himself or a danger to others in order that he may be certifiable.

This judgment is, to alienist physicians, the most important that has been delivered since the Act of 1890 was passed, and its importance justifies the space here devoted to it.

Occasional Notes.

The Reduced Rate of Accumulation of the Insane in Asylums.

The Reports of the Lunacy officials for the three Kingdoms for 1910 are unanimous in drawing attention to the reduced rate of accumulation of the officially recognised insane.

In England, the increase is 628 below the average of the decennium; in Scotland, it is stated that the increase is the smallest recorded in any year since the institution of the Board; and in Ireland the increase was 150 less than the average of the last ten years.

The admissions yield even more striking results: thus in England the first admissions of all classes were 4.99 per 10,000 as compared with the highest rate, 5.72, in 1902, and is only slightly in excess of 4.92, the rate which obtained in 1898.

In Scotland, it is recorded that the first admissions of paupers have been 4.6 per 10,000 during the last five years as compared with 5.0 in the previous quinquennium. In Ireland, there is also a reduction in first admissions in the last five years as compared with the preceding period.

The production of insanity, therefore, has been reduced in all three countries during the last quinquennium. Variations in the production have occurred before in the statistical history of the insane, but none of such a persistent and widely spread character, and they have been traceable usually to temporary conditions affecting the whole country.

The important question to decide is whether the reduced first admissions are due to less numerous cases of mental disorder or to these being treated to a much larger extent outside asylums.

The English Report, in its Table XXIV, shows that 9·3 of the first admissions had been treated for first attacks outside of institutions for the insane. This table will demonstrate in a few years whether this mode of treatment is, or is not, on the increase, but it is doubtful if any statistics are available which would contrast these figures with what obtained, say, ten years back. The probability is that this mode of treatment has largely increased in recent years. In England, many work-houses, especially in the Metropolis, deal with many first attacks, and the same thing has developed in Scotland, especially in Glasgow. Amongst the well-to-do class the enormous increase in private mental nurses, as well as in nursing homes, in sanatoria, and in single homes (medical and lay), for the reception of incipient and unconfirmed insanity, is well known to every consultant alienist.

It is only necessary to assume an increase of 5 *per cent.* of the 9·3 recorded in Table XXIV to account for all, and much more than all, of the reduction of primary admissions, this percentage on the first admissions amounting to nearly 900 cases.

Cases, moreover, not primarily admitted, are possibly treated outside asylums in slight relapses, such as formerly would have necessitated admission to an asylum. These two classes would have added largely to the percentage of recoveries, and their absence from asylum admissions would fully account for the reduction on the recovery-rate. Until more definite information and statistics can be obtained of the extent to which insanity is treated outside asylums, it is not possible to arrive at any satisfactory conclusion in regard to the actual frequency of the occurrence of insanity, even with the fact of a reduced admission and accumulation rate.

The Lunacy Commission and the Lord Chancellor's Medical Visitors.

The fact that the Lord Chancellor's Medical Visitors have been associated with the Lunacy Commission has been so long expected that the actual occurrence only excites surprise that it had not been carried out years ago.

The question that now arises is whether the Lunacy Commission will gain any actual strength by the fusion of the two offices. If the change consists in the fact that the two sets of officers merely have their offices under the same roof, each continuing to discharge their wonted duties without relation to one another, it is obvious that the gain to the Lunacy Commission is *nil*. If, on the contrary, the visitors take some share in the ordinary work of the Commission, and the Commissioners discharge some part of the functions of the Visitors, a great deal of time might be saved, which is now lost by the overlapping of the visitation and inspection of patients by the two independent bodies. Even if this interchange of functions is carried out to its fullest extent, the real gain to the Lunacy Commission would be very far short of its actual needs.

Whether the fusion is real or only apparent, it is at least an admission that the Lunacy Board is in need of additional help, and a tardy recognition that something should be done to satisfy the demand for the alleviation of a crying evil.

The Lunacy Commission can never be regarded as being in a position satisfactorily to discharge its onerous duties and responsibilities until it has received a much more considerable addition to its medical *personnel*.

Pensions, medical degrees, and education of attendants no longer absorb the energies of the Association, and these might now be turned with advantage to the correction of this most serious deficiency in the provision for the treatment of the insane.

The Lord Chancellor has long been appealed to, but is apparently unable to influence the Houses of Parliament. The better course would therefore consist in an appeal to the public through the press. We possess a sufficient number of able writers, and such an overwhelming case, that an appeal to the public should not be in vain. Whatever plan of action is adopted it should be pursued with the same persistency and determination that has led to success in so many other matters.

Diploma in Psychiatry.

Dr. Clouston's paper on the success that has crowned the efforts of the Association with the University of Edinburgh leads to the hope that similar successes may be recorded at an early date in connection with other universities.

The advantage that such a development will confer on the specialty is beyond all question, and is to be hailed with all the enthusiasm so admirably expressed by Dr. Clouston. There is, however, a converse side in a feeling of anxiety that these special examinations might become too special. Already, in the earlier phases of medical examination, a student is examined, in physiology, for example, as if he were about to specialise in physiology rather than in medicine, and so on of other subjects.

The result is, that instead of a medical qualification being obtained in five years the average period is six and a half; and if the student has obtained a degree in arts prior to this, the result is that even before his specialisation he has reached an age which is late for taking up the actual business of life.

Examiners, acting according to their wont, might easily render it impossible for a student to acquire the requisite knowledge for a pass in the complex subjects of a medico-psychological degree in double the nine months estimated as necessary by Dr. Clouston.

The establishment of a degree in psychiatry is the fulfilment of one of the ends at which the Association has long aimed, but this has only been rendered possible by the action of those of our members alluded to by Dr. Clouston, to whom the sincerest thanks of the Association are most justly due.

Superannuation Act.

The legal difficulties in the working of this Act are by no means settled, we regret. The attention of the Home Secretary has been called in no uncertain way for some time past to the obvious injustice of the position caused by the advice given him by the Law Officers of the Crown, to the effect that the right to appeal to him only arises in any case when a pension is payable. If this is right, then officers of an asylum are at

the mercy of their committees, who may refuse to establish or may wrongly classify them, in spite of the precise terms of the Act, and there is no one to set them straight, except, perhaps, the High Court. An action for enforcement of rights would be out of the power of any individual on the score of expense, nor would it be convenient to commence an action against employers while the plaintiff is still in their service. Nor is it wise probably to stand by and wait till pension-time comes, unless a contribution has meanwhile been paid at the proper rate, for it would probably be said that no right to a pension could accrue without proportionate contribution. Any action would have to be taken at once, and on the refusal of a committee to receive the contribution which the plaintiff calculates to be the proper one relating to his class and wages. We are glad to hear that Lord Monk Bretton has recently pressed the Government again in the House of Lords on the point. The answer given to him was the stereotyped one—"The advice of the Law Officers is being taken." Lord Monk Bretton specially mentioned, as examples of hardship, the cases of the gardener at the Worcestershire asylums and the chaplains in the West Riding.

We note, too, that Lord Wolmer has given notice of a Bill to alter the terms of service in asylums. This proposes to deal with the long hours now given by each employee. He names sixty hours per week. If we remember right this idea was started and debated in the early days of county councils, but did not get far on account of the enormous dislocation of asylum machinery that would result. It had, however, the effect of inducing many committees to accord more liberal leave, daily and weekly. He further proposes that pensions shall be given on twenty-five years of service, irrespective of age. We are not prepared to admit that this would be a benefit all round. Much information and calculation will be required before the full effect of this provision can be ascertained. He also provides that all service in all asylums shall be aggregated, whether the minimum of two years' service in any particular asylum has been given or not. We rather think that this minimum was proposed by the two Associations themselves, to meet the restless spirit that has come over many attendants and nurses, the latter especially. That view, in any case, should be considered. There is a provision for insuring that no employee shall be

discharged by the superintendent without a certainty of appeal to the visiting committee. We believe that we are right in thinking that there is no need for this. The only "power to remove" an officer or servant rests with the committee (Lunacy Act, 1890, Sect. 276). It may be that there is a power of suspension given to the superintendent by the special rules of his institution—this must inevitably be so, for the sake of discipline. But we believe that the actual discharge is always made by the committee itself. However this has been in the past, it is very unlikely that in future, with the pecuniary liabilities created by the Pensions Act, any committee would neglect to see that every discharge is reviewed, if not actually initiated by itself.

We have reason to believe that this Bill is in answer to an election pledge given. We must confess that it does not entirely commend itself to us.

Lunacy in Glasgow.

Glasgow claims to be enthusiastic in the cause of social reform. In certain directions good results are chronicled. The methods of the Parish Council have been in operation for a period long enough to merit approval in the sphere of lunacy administration. Mr. Motion has had a long and wide experience as inspector, and Dr. Carswell has accumulated a knowledge of the insane poor which we regard as quite unique. The estimated population of the parish is 660,713, out of which number 1,004 were reported for medical investigation, and actually disposed of in the course of last year. Dr. Carswell's report on certification is most interesting reading, and he expounded it in a paper lately read before the Scottish Division, which we hope to publish in due course. The main points are that 972 new applications were disposed of last year, of whom 539 were certified, and 433 were not certified, more having been removed from home than from the observation wards to the asylums. The observation wards sent out recovered 218 and improved 101 persons, while 44 died. These figures are familiar enough, but when Dr. Carswell proceeds to consider the occurring insanity, he records 25 fewer persons certified

insane compared with the previous year, and the lowest number recorded since 1906.

The average annual rate per 100,000 for the first five years of the last decade was 66·6 ; in the second five years it fell to 63·7. This finding is in consonance with the rate for the whole of Scotland.

Dr. Carswell further considers the age-incidence, and shows that the rate at ages 15-45 has varied slightly in the same period, the lowest having been reached last year, *viz.*, 6·1 per 10,000, the highest having occurred (8·8) in 1902. On the other hand, the rate for the age-period more than 45 shows marked fluctuations, from 11 per 10,000 in 1904 to 18·4 in 1908. Or, in the first five years of the decade the proportion was 8 per 10,000 in ages 15-45, and 7 in the last five years ; whereas in ages more than 45, the proportions were 13·8 and 16·0 for the same quinquennial periods.

Further, Dr. Carswell shows that certain districts with high death-rates also revealed high lunacy rates, that districts with low death-rates had low lunacy rates, while those districts with average mortality (18) showed an average occurrence of insanity.

These important conclusions deserve wide recognition, and we are glad to have the opportunity of thus setting them forth, however briefly. They are not unexpected, but rather confirm what has been a general opinion, and establish it by indubitable figures.

Part II.—Reviews and Notices.

Cesare Lombroso: a Modern Man of Science. By HANS KURELLA, M.D., author of *Natural History of the Criminal*. Translated from the German by M. EDEN PAUL, M.D. London: Rebman, Ltd., 1911. Pp. 194. Price 4s. 6d. net.

A detailed review of this work is not called for. Dr. Eden Paul has already epitomised Kurella's masterly appreciation of Lombroso (p. 168), which first appeared in the *Monatschrift für Kriminalpsychologie und Strafrechtsreform*. The passing of Lombroso from the world's philosophic arena was a momentous event. He was a sage of strong personality, brilliant ideas, and enthusiastic beliefs, and one of the greatest reformers of criminology and criminal sociology. The book before us is a brilliant exposition and critique of his work by one whose

authority cannot be questioned, and should be widely read by all classes of the community. Dr. Eden Paul has added a number of explanatory foot-notes, and has to be congratulated upon a most readable translation.

J. R. L.

Text-Book of Nervous Diseases for Physicians and Students. By Professor H. OPPENHEIM, of Berlin. Authorised translation by ALEXANDER BRUCE, M.D., F.R.C.P.E., LL.D. Fifth enlarged and improved edition. Edinburgh, 1911. 432 illustrations and 8 plates. Price £2 2s. net.

In reviewing the third edition of this important text-book some eight years ago, as it appeared in the original German, we gave it a hearty welcome. Prof. Oppenheim's reputation naturally has increased in the interval, and we congratulate Dr. Bruce on having rendered this great work accessible to English readers in this handsome form, which so exactly and clearly reproduces the meaning of the distinguished author, who has so long been held in the highest esteem by those familiar with his record. Dr. Bruce has given us an excellent translation, a great book admirably illustrated, and now happily completed by bibliographical details of great value to workers. Indeed, it has the merit of reproducing the German text in a style which hardly betrays its foreign origin. We have noticed only one slight mistake in these interesting volumes.

Prof. Oppenheim began with the intention of writing for medical practitioners, and that intention has been fulfilled in conciseness, clarity, and scope. The result of a direct, forcible style, illustrated by numerous plates and diagrams, is a text-book which must command a wide circle of readers desirous of making themselves familiar with recent and authoritative work in neurology. The scope of the book may be briefly indicated: The general examination of patients, the spinal cord and peripheral nerves, the brain; after which the neuroses are discussed (hysteria, neurasthenia, etc.), epilepsy, spasms and chorea, the sympathetic system, and, lastly, alcoholism and morphiomania—all on the lines of previous editions.

We have found it easy to refer to the various sections in detail. For instance, turning at random to erythromelalgia, we are presented with an excellent account of that rare malady, and of all the necessary practical observations regarding it and allied conditions, such as erythromelia and Raynaud's disease. Such a text immediately satisfies the student who is brought face to face with an uncommon case and desires to acquire the latest information regarding it. No doubt neurology occupies the attention of author and reader from first to last, but that is of special value to the psychiatrist; the continual insistence upon physical conditions keeps him in touch with medical ideals, research and conclusions. As an example, we may cite Prof. Oppenheim's remarks on the differential diagnosis of cerebral softening, which should be specially studied in order to arrive at a due understanding of that condition. The correlation of clinical and pathological facts with the manifestations of mental aberration is an evident necessity for those

who desire to keep abreast of our science. Neurology and psychology are largely interdependent, and for those of us who are more especially devoted to the latter such a book as this is indispensable.

The plan of considering general symptomatology in the first place enables the author to lay a solid foundation, on which he proceeds to develop consideration of special parts of the nervous system and their diseases. For instance, the examination of the pupils is discussed in some six pages of valuable and authoritative information, including the fact that foreign bodies in the nose, ear, etc., which keep up constant irritation, may have an effect on the size of the pupils (Frenkel, Moos, Sabrazés), indicating the care with which slight differences are to be considered, and explaining the conditions in which "springing pupil" are found. After this synopsis, however, the state of the pupils in various diseases is again discussed *seriatim*, *e.g.*, in regard to the diagnosis between tabes and multiple neuritis, it is pointed out that immobility of the pupils is not, as a rule, observed in the latter, while it is unusual in chronic alcoholism (Bunke). By this systematic plan, proceeding from the general to the particular, the student first gains a knowledge of the subject and afterwards returns to the consideration of the specialised case in which he is particularly interested.

We notice that Prof. Oppenheim believes that "railway spine" issuing in myelitis is exceedingly rare, and prefers to refer such cases to traumatic neuroses—which in turn leads to a most important discussion of the injury and its consequences, of obvious value to those who have to report upon these accidents, which so often find their way into courts of law.

It is impossible to write of these bulky volumes in detail; they are filled with masterly studies, and we can only indicate their value by extracting a few brief references. For instance, in considering the anatomy and physiology of the brain, Prof. Oppenheim, proceeding upon experimental observations and pathological confirmation, believes that the frontal lobes play a prominent part in the higher mental functions, thus confirming Bolton's opinion.

Turning to his account of syphilis of the brain, he describes it as generally basal, gummatous meningitis, characterised by inconstancy of symptoms and the way in which they come and go and shift about, which is another way of stating Hughlings-Jackson's conclusion of a generation ago. In cases of syphilitic disease of the convexity, the resemblance to general paralysis is referred to, but he finds that the prognosis is more favourable than that of basal disease, while energetic anti-syphilitic treatment is demanded, mercurial inunction being preferred, "606" not having been available at the time of writing. The syphilitic origin of general paralysis is generally accepted now that convincing facts have been brought forward to strengthen the earlier statistical indications, for Prof. Oppenheim does not accept the theory of gastro-intestinal auto-intoxication, nor of the bacterial findings recently recorded in Scotland. He agrees with those who believe that there has been a change in the type of general paralysis, and remarks on the frequent and prolonged remissions which he has observed. In regard to diagnosis, he acutely discusses the value of lumbar puncture and its limitations in forming conclusions. In spite of the disappointment following on anti-syphilitic

treatment as a general rule, Professor Oppenheim recommends it, and avoids any discussion of attempts at serum-therapy.

The chapters on hysteria and neurasthenia command cordial approval. In the former, the extreme excitability of the patient, the abrupt changes, the explosive actions are reviewed seriatim, and the fact that the patient's life is not a unit, but composed of two or more personalities (reminding us of recent American studies), is a memorable conclusion, more in consonance with facts than Freud's theory of the "sexual trauma," which our author wisely rejects as the specific cause of hysteria. The irritable weakness of neurasthenia, the excitability and fatigability of this disorder are fundamental in Prof. Oppenheim's opinion. He diagnoses it by a process of exclusion—certainly not by the occasional occurrence of uric acid or arterio-sclerosis. We have referred to those maladies which are not in the ordinary track of our experience, but are rather seen in consultation than in our wards; yet they are of great importance in relation to our work and studies. It will be understood that we leave a vast amount of valuable material untouched in this short review of a sagacious, carefully restrained book. Prof. Oppenheim conducts us through an immense and complicated maze of facts, but he brings us out in safety, stimulated and encouraged, assured that we have not left solid ground for visionary speculations. With such a guide the tangled skein is sorted out and displayed in orderly fashion, while we are deeply conscious of the competence and the erudition of the author and the skill of his translator.

Part III.—Epitome of Current Literature.

1. Neurology.

Some Remarks on Subcortical Motor Aphasia [*Quelques remarques sur l'aphasie motrice sous-corticale*]. (*Journ. de Psychol. norm. et path.*, Jan., 1911.) Dagnan-Bouveret, J.

In this article, the author discusses the nature of aphasia in general, and of "subcortical motor aphasia" in particular. The nature of the latter provides a good test-case between the adherents of the rival theories of aphasia which are in vogue at the present time. Cases are met with in which the aphasia consists of an incapacity to speak aloud spontaneously, to read aloud, or to repeat words, and of these defects alone. The capacity for "internal language" is intact, and such patients can give evidence of this by their power to indicate by signs the number of syllables in the word they would like to pronounce, and their understanding of words they read or hear. Those who uphold the classic view of aphasia have given such cases the name of "pure motor aphasia." According to these observers, there exist definite and separate areas of the grey matter of the cortex in which are stored the auditory, visual, and the motor images of words.

In cases of "pure motor aphasia," these observers maintain that the grey matter of Broca's area is intact, but its efferent fibres contained in

the subcortical white substance are destroyed. Thus the grey matter of this centre is isolated from the motor centres necessary for speaking aloud, but being itself intact internal language remains possible. From this conception of the pathology of the condition is derived the name "subcortical motor aphasia," synonymous with "pure motor aphasia."

Though this view is attractive by its simplicity, it is, according to M. Bouveret, inconsistent with the evidence derived from three sources—introspective psychology, clinical observation, and *post-mortem* findings.

In regard to the evidence derived from psychology, he quotes with approval the criticisms of Bergson upon the associationist theory of language. Though these criticisms deal primarily with the application of the theory to the explanation of sensory aphasia, they are equally cogent to its application to explain motor aphasia, for it forms the basis of the classical theories of the nature of both.

The substance of these criticisms may be stated as follows: It is impossible to consider that verbal images are correlated with definite images of things, and that internal language is constituted by the juxtaposition of these verbal images. To what, according to this theory, are correlated those parts of speech whose function is to express relations between the images? The sense of such a word varies enormously according to its position and the words it unites. It is possible to conceive a primitive language composed of nothing but concrete nouns arousing images of things. But such a language would only be comprehensible by the action of the mind establishing the unexpressed relationships. To admit this as possible is tantamount to an admission that it is unnecessary to conceive of a definite image of a thing corresponding to each verbal image.

The notion of the localisation of images of words in special centres is inadmissible. A word has no individuality until we have learnt to abstract it. "It is phases, not words, that we first learn to pronounce." The sense of a word varies with its setting. How does the classic theory account for the fact that the image of a word arouses images of things, differing appropriately according to the context? How do different sounds, such as the same word pronounced by different voices and in different tones, arouse the same image of an object?

Professor Pierre Marie finds the association theory of language inadequate to explain the phenomena noted clinically in sensory aphasia. This condition varies much in intensity, but in all cases what is noted is not a loss of certain words, but a general enfeeblement of understanding of words. According to the severity of the case words of one or more kinds disappear, and the order of their disappearance is constant; thus proper nouns disappear first, verbs last. This is inexplicable if one considers the image of a word dependent on the integrity of a certain cell or group of cells in the cortex. Why should the disease always pick out the cells corresponding to words of a certain class?

Turning to the subject of motor aphasia, M. Bouveret remarks that the notions of the necessary existence of motor images, as a step in the production of a spoken word, arose by analogy—from the desires to assimilate the theory of the production of words to the theory of their understanding. The latter was supposed to depend on the fusion of a

direct sense impression with an image stored in a definite area of the cortex. By analogy it was supposed that, between the intention to pronounce a word and the action of the motor centres accomplishing this, there must be interposed a stored motor image of the word. This, however, according to M. Bouveret, is a gratuitous assumption. There exists, it is true, a motor image of any word which has ever been pronounced, but there is no evidence that the arousing of this image is a necessary step in the pronunciation of the word.

In passing, he controverts the analogous classic theory of the nature of apraxia, of which, indeed, he considers "pure motor aphasia" but a special case. It is, according to M. Bouveret, a similar gratuitous assumption to state that, between the desire to carry out a certain complex voluntary act and its accomplishment, there is interposed a motor image of every element into which the mind of an observer can resolve this act. Introspectively we find that what is represented is the end to be achieved, and this representation accompanied by an affective state—the desire to achieve it—is adequate to start the motor mechanism effecting the action.

M. Bouveret then shows how Professor Pierre Marie has challenged the classic conception of "subcortical motor aphasia" from the standpoint of clinical observation and of pathological anatomy. Marie's view is that true aphasia is one and indivisible; motor and sensory forms cannot be distinguished. It consists, not in a defect of perception, but in a general intellectual emfeeblement, "characterised especially by a loss in the stock of things learnt by didactic processes." This is shown, according to Marie, by the facts that, though isolated words are perfectly understood, if one gives an aphasic an order to carry out a series of complex acts he fails in the attempt. And the same result is obtained if he is required to copy a series of actions first carried out by the observer. His failure indicates a general intellectual impairment, not a mere loss of understanding of words.

Now in "pure" or "subcortical motor aphasia" there is, according to Marie, as well as the adherents of the classic views, no intellectual defect. Marie refuses, therefore, to consider this as true aphasia, and prefers to consider it rather a special defect of articulation to which he gives the name of "anarthria."

M. Dejerine, who stands for the classic view, objects that if the trouble were merely one of the articulatory mechanism it ought to be accompanied by other signs of paralysis of this mechanism as in pseudo-bulbar paralysis.

M. Bouveret, admitting that the articulatory mechanism is not *paralysed* in cases of "anarthria," still maintains that the defect is in the innervation of this mechanism, but rather of the nature of an ataxia. And this ataxia only affects the performance of one specific function of the mechanism, *viz.*, phonation. The condition is analogous to that of abasia, where the patient cannot stand though there is no evidence of paralysis of the legs.

According to Marie, the lesion producing "anarthria" is situated in the white matter between the insula and the lenticular nucleus. He has shown that in many cases there have been found at autopsy in such cases also extensive lesions of the cortex. The existence of these is

not inconsistent with this view—the cortical lesions he regards as merely accessory. But the existence of a lesion of Broca's area in a case of "pure motor aphasia" is quite inconsistent with the classic view. M. Bouveret then gives a detailed account of a case demonstrated for years by Dejerine and his pupil, Bernheim, as a typical case of "pure" or "subcortical motor aphasia." In this case there was found at autopsy (in addition to two foci of softening in the right hemisphere), an area of softening in the left hemisphere which had entirely destroyed the grey matter of Broca's area. The lesions found *post-mortem* are illustrated by photographs.

EDWARD MAPOTHER.

Researches on the Nature of the Primary Colorability of the Nervous System [*Ricerche sulla natura della colorabilità primaria del tessuto nervoso*]. (*Riv. Sper. d. Fren.*, vol. xxxvi, Fasc. 1 and 2.) Besta, C.

By primary colorability is meant the property possessed by certain portions of the nervous tissue, of staining themselves with basic dyes, when these are made to act upon the fresh material or upon tissue which has been fixed by methods which do not alter its chemical constitution (alcohol, ether, and other dehydrating agents). The differences in the staining reaction shown by nervous tissue subjected to different fixative agents is remarkable. Besta has sought to discover the rationale of these differences. The investigations of Bethe, Lugaro, Höber, and Auerbach are passed in review, and the experiments of the author then described in detail. He arrives at the following conclusions: The primary colorability of the nervous substance is probably due to the existence in it of a special substance, capable of fixing the basic dyes (free substances of Bethe). Hydrochloric and nitric acid in aqueous solution have the power of bringing about a well-marked secondary staining of the nerve-elements in the presence of some basic colours. This secondary staining is probably related to a special substance in the nervous elements, which is not identical with the free substance of Bethe. The author's views agree in the main with those of Bethe and Lugaro and are opposed to those of Auerbach.

J. H. MACDONALD.

2. Physiological Psychology.

The Theory of Negativism [*Zur Theorie des Schizophrenen Negativismus*]. (*Psychiat. Neurol. Woch.*, Nos. 18-21, 1910-11.) Bleuler, E.

Bleuler regards negativism as a complicated symptom due to various and often co-operating causes, and he considers that the theories hitherto prevailing are either incorrect or inadequate. In this somewhat elaborate discussion he seeks to clear up the matter.

In its chief form negativism is characterised by the patient's refusal to do what under normal circumstances he might be expected to do (passive negativism), or else by the impulse to do the exact opposite (active negativism). These negativistic actions are usually, but not necessarily, accompanied by an emotional attitude of irritability or anger. In addition to this external negativism, there is also an internal

negativism which more especially affects the will ; the patient cannot do what he wants to do, for at every stage between the thought and the action a counter-impulse arises. It is difficult to reach the subjective process behind this volitional negativism, and few patients can throw light on it. Not seldom, however, the negativistic impulse is accompanied by hallucinations, which render the counter-impulse imperative, as when a katatonic patient who wishes to say something seems to hear his neighbour utter the command : "Shut up." Least known of all is intellectual negativism, that is, the denial of thoughts, or the tendency for a thought to be followed by the opposite. The subjective side of such intellectual negativism is variable, and while with some patients it is an obsession, in others it occurs unconsciously. Sometimes intellectual negativism affects the speech mechanism and the patient says the opposite of what he intends to say. Bleuler agrees with Anton that in hebephrenic patients, who are conscious of being more or less morbidly suggestible, the attitude of refusal may be adopted as a kind of psychic self-protection against unpleasant influences. In non-scissional psychic states, also, negativistic conduct is often genetically connected with marked suggestibility, partly as two sides of the same emotional state, related to each other as positive to negative, and partly as a conscious, or more often instinctive, measure of protection. But the symptom has other and more important roots.

Looked at closely, Bleuler believes, pathological negativism has the same foundation as the attitude of refusal in the sane. We reject because we do not wish to be disturbed. That is regularly the case in scissional negativism. All these patients are in a high degree autistic, by which term Bleuler means turned in on themselves, averted from reality ; the most essential part of their split-up ego is withdrawn into a dream world of ideas and wishes, so that external reality is merely a source of disturbance. Many patients are conscious that this is the cause of their negativistic conduct. The patient, moreover, who wishes to shut himself off from reality must not only seek to restrain the action of the environment on himself, he must also refrain from himself influencing the environment. In this way autistic and negativistic patients are mostly inert ; their relationship to the external world is both actively and passively diminished.

In children, we may observe another cause for negativistic behaviour : they do not understand the meaning of what is wanted (for instance, under medical examination), and seek to protect themselves against the unknown. The same is seen in imbecility and similar mental conditions. In scissional mental states, there is often the same failure to understand the environment, leading to the same manifestations. The patient may, indeed, regard the environment as not only incomprehensible but actually hostile. In this way negativism may be called out or increased by opposition.

Bleuler finds, moreover, numerous other sorts of negativism in these mentally dissociated patients. There is, for instance, emotionality and morbid irritability, which forms, with negativism, a vicious circle. There is increased difficulty of action and thought (though no specific motor disturbance), so that the patient is incapable of properly guiding his thoughts. Sexuality furnishes another root ; some normal sexual

phenomena (such as modesty) are negativistic, and in some scissional complexes the negativism is based on a sexual delusion, as that the patient has been violated. Delusions and hallucinations are closely connected with negativism, and lead to conduct which cannot be differentiated from the ordinary negativistic attitude.

Passive negativism leads on to active negativism, and the opposing action is mostly so obvious and so significant of self-protection as to be instinctively adopted by man and animals. Here Bleuler attaches importance to what he terms "ambitendency"—that is to say, the tendency, which is to some extent normal (and was, it may be added, long since noted by Schopenhaver), to desire the opposite of what one has resolved to do; since both the opposing tendencies are present it needs only a slight disturbance to bring the negative one into undue prominence.

Closely related to ambitendency is ambivalency, which is another of the foundations of negativism. By this Bleuler means the association of an idea with, at the same time, both positive and negative feelings, which also occurs to some extent normally. The state of mental dissociation in scission tends to give undue prominence to the negative element. Negativism is thus conditioned by a variety of influences which place the patient in opposition to the external world, the ground being prepared by the dissociated mental state, which also is unfavourable to the normal rejection of perverted conduct.

HAVELOCK ELLIS.

The Pathology of Expansive Delusions [*Zur Pathologie der Grössenideen*].
(*Allg. Zeitschr. f. Psychiat.*, April, 1908.) Kauffman, Max.

The genesis of exalted ideas as observed especially in general paralysis has been explained from various standpoints. A condition of euphoria, bodily sensations and a definite loss of function, shown by an absence of the faculty of judgment and criticism, have each been regarded as playing the preponderating rôle in the production of such ideas. The writer points out that dementia does not necessarily lead to the production of exalted delusions, and that there are many patients with such delusions who show no evidence of mental enfeeblement. Thus in senile dementia, where all the conditions are present which, according to Kraepelin, are necessary for the formation of expansive delusions, a certain boastfulness may be observed, but scarcely ever the phantastic delusions of the paralytic. There are also many deeply demented hebephrenics without exalted ideas, such being more frequent in the excited motor type.

There is a close association between the feeling-tone of the personality and localised bodily disorders, e.g., the state of well-being in pulmonary tuberculosis, the depression in abdominal disease, and the diffuse anxiety in cardiac conditions. The author ascribes a similar origin to the exalted notions of the paralytic. A morbid feeling of strength and an absence of strain and fatigue sensations produce a state of somato-psychic disorientation which is to be regarded as the foundation of the delusions. Muscular sensations are often observed to lead to expansive ideas in hyperkinetic hebephrenics. They feel so light-hearted that they could fly, etc., and from such feelings they begin

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to develop the notion that they are the Son of God, messengers from Heaven and the like.

Thus, in general paralysis, a pathological feeling of happiness and strength compels the production of exalted delusions.

Several cases are detailed in support of these views.

H. DEVINE.

3. *Ætiology of Insanity.*

Tuberculosis and Insanity: Ætiological Researches by Sero-Diagnostic Methods [*Tuberculose et aliénation mentale: recherches étiologiques par le sérodiagnostic*]. (Rev. de Psych., May, 1910.) Marie, A., and Beaussart, P.

After noting the fact that, in spite of improved hygienic conditions, earlier diagnosis, and modern methods of treatment, tubercle is still much more frequent in the insane than in the sane, these authors give a brief historical sketch of sero-diagnostic methods as applied to tuberculosis. Of these the "fixation of the complement" method of Marmoreck seems the best, since the reaction is only given with active tubercle.

Whether there is any real connection between mental trouble and preceding tubercular infection has long been debated. It is fairly well established that it takes rank with syphilis, alcoholism, and nervous disease as the most frequent of the hereditary factors in insanity. Equally certain is it that tuberculosis is often accompanied by mental symptoms, or by an exacerbation of an existing mental disorder. Most often it is associated with melancholia, while in the later stages of phthisis, for example, the mental condition is one of excitement and exaltation. Like all other infections it may give rise to a state of confusional insanity. It has also been shown to cause encephalitis, and so to be a factor in certain cases of epilepsy, dementia præcox, and general paralysis.

The writers discuss whether sero-diagnostic methods can throw any light on the tubercular origin of individual cases of insanity. Calmette's, von Pirquet's, and the agglutination tests cannot be said to do so, for these all give positive results in cases of healed tubercular lesions, small caseous glands, etc., which cannot have any effect on the mental state. Marmoreck's method differs from these, however, in the fact that the reaction is only given when tubercular toxins are actively circulating in the blood, and may thus be fairly considered as exerting an influence on the brain. They give an analysis of eighteen cases of mental disease, comprising melancholia, mania, and confusional insanity, in which they have applied these methods; of these, twelve had reacted to the former tests, though showing no signs of active tubercle, but in two only was Marmoreck's test positive; in these last cases alone do they think it proved that the toxins have been the causal agent in the production of the psychosis. The method has also been applied to the cerebro-spinal fluid, but without result, except in cases of tubercular meningitis, in which a positive result was almost always obtained.

W. STARKEY.

4. Clinical Neurology and Psychiatry.

The Precipitation Reaction of Porges in Syphilis and Tabes [*La réaction de précipitation de Porges dan la Syphilis et le Tabes*]. (*Gaz. des Hôp.*, July 21, 1910.) *Le Sourd, L., and Pagniez, Ph.*

The reaction proposed by Porges as a means of diagnosis in syphilis consists in a precipitation obtained by mixing, in a small test-tube, equal quantities of a 1 *per cent.* aqueous solution of sodium glycocholate and the blood-serum of the patient. Various observers have investigated the value of the reaction, amongst the first being Le Sourd and Pagniez, who in this, their second communication on this subject, analyse the results hitherto published. Out of a total of 535 cases of syphilis in different stages, a positive reaction was obtained in 362, *i.e.*, 67·6 *per cent.*; whilst out of 484 control cases, 45, *i.e.*, 9·2 *per cent.*, gave positive results. The authors think these results compare very favourably with those obtained by the Wassermann reaction in syphilis. In the case of the para-syphilitic affections the reaction appears to be less constant. The authors obtained it in only 12, or 37·5 *per cent.*, out of 32 cases of tabes. They were all long-standing cases of ten, fifteen, and twenty years, and the authors think it possible that a higher percentage of positive reactions might be obtained in incipient or early cases. No relation was detected between the precipitating power of the serum and the evolution of the tabes, its arrest by blindness, the persistence of lightning pains, or visceral crises, etc.

It is not yet possible to form a definite opinion as to the comparative values of the reactions of Wassermann and Porges in parasyphilis. The former has been sought for most frequently in the cerebro-spinal fluid, less often in the blood-serum, and sometimes in either one or the other. The statistics are often not too explicit on this point. Levaditi and Latapie, in the Pasteur Institute, found a positive Wassermann in 6 out of 10 cases of tabes (60 *per cent.*). Nonne and Holzmann obtained a positive result in 62 out of 93 tabetic serums (67 *per cent.*). The cases of Nonne and Holzmann were nearly all early cases, and hardly any were of more than ten years' standing.

To sum up, Le Sourd and Pagniez are of opinion that the reaction of Porges, though not absolutely specific, is yet of such frequency in syphilitics as to be of service in ordinary practice. Only in cases of disagreement between the reaction and the clinical manifestations need recourse be had to the Wassermann reaction, which is certainly more precise but infinitely more complex, and, at the same time, liable to lead to error all but the skilled and practised technician.

J. H. MACDONALD.

Joint Communication on Syphilis: Recent Methods of Diagnosis and Treatment—the Wassermann Serum-reaction and Ehrlich's "No. 606." (*Glasgow Med. Journ.*, Nov., 1910.) *Muir, R., Browning, C., and McKenzie I.*

Dr. Muir gives a brief but lucid introductory account of anti-bodies in general, and the growth of our knowledge of this subject. This is followed by a paper by Dr. Browning on the Wassermann reaction.

Finally comes the section of the joint communication, which will be of chief interest to the readers of this Journal, *viz.*, Dr. Ivy McKenzie's paper on parasyphilitic diseases.

Parasyphilitic diseases.—Recent researches with Wassermann's reaction give positive results in almost every case of paralytic dementia. Gilmour found 98 *per cent.* in 150 cases (blood). In a series of 22 cases of locomotor ataxy a positive reaction was obtained in 70 *per cent.* (blood). And whereas in paralytic dementia the reaction of the cerebro-spinal fluid was positive in 40 out of 66 cases, in primary and secondary syphilis, and in tertiary syphilis of organs other than those of the central nervous system, the cerebro-spinal fluid invariably gives a negative reaction. Thus a positive Wassermann reaction in the cerebro-spinal fluid may be taken to indicate syphilitic disease of the central nervous system. But if the blood be negative, we are practically justified in assuming that that disease is not paralytic dementia. Recent research tends to suggest that tabes and paralytic dementia—the so-called parasyphilitic diseases—may after all be expressions of the direct activity of the syphilitic virus. It seems possible that the virus varies in intensity and in place of preferential attack, so that some infections produce especially bone disease, others cerebro-spinal disease, etc. Compare cases of conjugal tabes and conjugal paralytic dementia. Compare also the frequency of particular complications in particular epidemics of scarlatina, typhoid, etc. There is thus considerable evidence for the view that paralytic dementia and locomotor ataxy depend to some extent on infection with a particular strain of spirochæte.

Passing to consider the actual evidence of the presence of the syphilitic virus in the so-called parasyphilitic diseases, the writer deals with the problem in the light thrown on it by the resemblances between syphilis and human trypanosomiasis (trypanosome fever and sleeping-sickness). These resemblances are as follows :

- (1) Both trypanosomiasis and syphilis are due to protozoal infection ; both diseases may be transmitted experimentally to animals.
- (2) A reaction analogous to the Wassermann reaction, present in syphilis and the parasyphilitic affections, occurs also in experimental trypanosomiasis.
- (3) In both we see early lymph-gland affection, early febrile and constitutional disturbance, exanthemata, periods of latency, and late involvement of the central nervous system.
- (4) The cellular characters of the lesions are similar in both cases ; lymphocytes and plasma-cells play a prominent part in the reaction, and the perivascular infiltration in paralytic dementia closely resembles that seen in syphilis.

[The writer does not dwell on the striking difference in the life-history of the two organisms, that of syphilis apparently running its complete cycle in the human body, whilst that of sleeping-sickness has an alternate generation in an intermediate host ; but this difference need not necessarily invalidate the argument based on the undoubted similarities.]

The missing link in the chain of comparison is our failure up to the present to demonstrate the presence of the virus of syphilis in paralytic dements. But no case of hard chancre in a tabetic or general paralytic has ever been reported. Second infections of syphilis, though

rare, do occur, apparently only when cure has been complete, *i.e.*, when the virus has finally disappeared from the system. It is suggested that the "acquired immunity" of syphilitics is due to an equilibrium between the host and the spirochæte, and that para-syphilitic affections, like the visceral lesions of tertiary syphilis, are due to a loss of this state of accommodation and to the growth of the spirochæte once more. The existence of latent periods in disease is, of course, not peculiar to syphilis. [The prolonged latency of malaria, when the original infection has not been eradicated, is familiar to all.] The failure of response to anti-syphilitic treatment has been urged in favour of the view that the "para-syphilitic" affections are not directly dependent on the virus of syphilis. But the failure is not invariable; and, moreover, it is possible that the site, rather than the nature, of the lesion is the cause of failure in these cases. [It has been found experimentally that potassium iodide does not pass from the blood-stream into the cerebro-spinal fluid.] "606" is still on its trial, but it is asserted that the use of this remedy has led to marked improvement in many cases of locomotor ataxia and paralytic dementia.

Syphilis and congenital mental deficiency.—The whole subject of congenital syphilis requires re-examination by modern methods and in the light of recently acquired knowledge of the disease and its infective agent. From data already available it appears that children who suffer from mental disease of congenital origin, but show no other sign of syphilis, may show a positive Wassermann reaction, although at the time of examination they may appear to be in ordinary health and show no sign of previous disease. It would appear that syphilis plays a larger part than is commonly supposed in the production of congenital mental affections. The terms "racial degeneration," or "stigmata of degeneration," when applied to congenital mental disease, may convey a false impression, especially when such cases are of syphilitic origin and are due to specific infection of the individual. Congenital syphilis outside the nervous system produces degeneration only in the sense that an infection leads to the destruction of structural elements. In the same way, it is not too much to say that nervous disease associated with congenital syphilis is the expression of anatomical changes that are due to an intra-uterine infection with the *Spirochæte pallida*. The changes which such a degeneration produces in the young plastic brain are likely to be permanent and hopeless from the point of view of individual therapy. If medical science is prepared to urge prophylactic measures for the prevention of such diseases, it is well that it should be definitely established and recognised that a considerable proportion of cases of congenital mental deficiency is infectious in origin and that the infection is syphilis.

M. EDEN PAUL.

The Cerebro-spinal Fluid of General Paralysis: Cyto-diagnosis, Albumen diagnosis and Precipitation Diagnosis of Porges; A Comparative Study of their Quantitative Value [Le liquide céphalo-rachidien de la paralysie général]. (Le Prog. Med., No. 38, 1910.) Beaussart.

The cerebro-spinal fluids of fifty typical cases of general paralysis were examined under like conditions. In every case lymphocytosis was

present in greater or less degree, generally corresponding to the longer or shorter duration of the disease. The quantity of albumen detected showed a constant parallelism with the cytological count, the feeblest reactions corresponding with ten to twenty, and the most intense reactions with ninety to a hundred elements per microscopic field. The reaction of Porges was positive in only twenty-three, or 46 *per cent.* of the cases. Its intensity in many instances showed no relation to the amount of albumen present, a fluid with a small quantity of albumen giving a reaction as intense as another with much albumen. In the hands of Beaussart the precipitation reaction of Porges has shown itself to be strictly specific, although it is less frequently positive than Wassermann's reaction.

J. H. MACDONALD.

The Psychoses of Exhaustion [Sulle psicosi da esaurimento]. (Ann di. Freniat., vol. xx, fasc. 2.) Ruata.

The literature of the psychoses of exhaustion is misleading and confusing. Some authors classify them as distinct entities, and as they ought to be classified; others, and they are in the majority, confuse them with other and widely differing forms of insanity. All mental affections caused by exhaustion begin suddenly and run an acute course; they have the following characteristic symptoms: Dulness of intellect, mental confusion, sensory disturbances, frequent wasting and mental paralysis, sometimes motor agitation; on the ætiological side, infectious or acute intoxications, or states of exhaustion. Finzi has subdivided the psychoses into two groups: (1) The more typical forms that last for days or weeks—the so-called febrile deliria invariably due to intoxications. (2) When the forms defined in the first group are less serious and are prolonged for months, still preserving the same characteristic symptoms; they are grouped under the name of amentia. Ruata would reserve the term “amentia” for those psychopathic states in which the most varied exhausting influences play a casual part: grave physical diseases, losses of blood, the puerperal and lactational states in starved and impoverished persons, want of sleep, inanition, and sometimes deep emotions. The mental condition in amentia shows dissociation, incoherence, and disorder of all the mental acts. The anatomico-pathological basis of the psychoses is a true meningo-encephalitis (generalised), from which varied meningeal manifestations follow according to the extent of the inflammatory process. Ruata gives an interesting analysis of cases coming under his immediate observation, and going back as far as the year 1884. He summarises his conclusions under four headings:

(1) The psychoses of exhaustion are of favourable prognosis, and are characterised by dissociation and incoherence of all the mental actions. The affected individuals are predisposed, and the most varied exhausting influences play the casual part.

(2) The determining influences can cause either the short “acute exhaustive deliria” (*Deliri da collasso*), or the amentia of longer duration.

(3) In the genesis of the amential forms the influence of nervous exhaustion is clearly demonstrated especially in puerperal and lactational conditions, in uterine affections, and in marked bodily fatigue.

(4) Every advance in public health is favourably reflected in these psychoses, as the adoption of prophylactic measures diminishes their frequency.
HAMILTON C. MARR.

A Clinico-statistical Study of the Paralytic Seizures in Progressive General Paralysis [*Studio clinico-statistico sugli attacchi paralitici nella paralisi generale progressiva*]. (*Ann. di Freniat.*, vol. xx, fasc. ii.) Margaria, G.

The results of Margaria's investigations are embodied in four tables, with accompanying explanatory and deductive letter-press. In the first table are grouped the cases in which there are apoplectiform attacks; the second is concerned with epileptiform seizures; the third with cases in which there is a combination of these two forms; and finally, the numbers in the first three tables are examined with a view to an estimate of the frequency of the occurrence of transitory aphasia. Death occurred from the seizure, in the cases in which apoplectiform attacks were present in 55.10 *per cent.*, more frequently among men (56.16 *per cent.*) than in women (52 *per cent.*). Death is caused during epileptiform attacks, in the cases in which these happened, to the extent of 56.25 *per cent.*, also more frequently in men (64.7 *per cent.*) than in women. When the combination of apoplectiform and epileptiform seizures is considered, death results only in .5 *per cent.* from the seizures. Transitory aphasia is present in 42.68 *per cent.* of all the cases.
HAMILTON C. MARR.

Symptoms of Delirium Tremens in a Case of Cerebral Tuberculosis [*Phénomènes d'excitation psychique, puis délire alcoolique; Tuberculomes cérébraux et méningo-encéphalite Toxique*]. (*Prog. Med.*, Nov. 26th, 1910.) Claude and Sourdel.

The patient whose case is reported in this paper was a metal worker, addicted to the abuse of wine and absinthe. About a year before coming under observation he had an attack of pleurisy, and a short time after he had a typical epileptic seizure, and a month later another fit of similar character. Nothing special was noted about him from that time up to the beginning of his final illness. This illness lasted twelve days and was ushered in by two epileptic attacks, after which the patient remained in a state of moderate mental excitement verging at times on delirium. He was ordinarily, however, pretty coherent during this phase, and even took a prominent and successful part in the mob oratory connected with a strike amongst the workmen in his trade. When this condition had lasted about five days, he became more excited and incoherent, and developed mobile and transitory hallucinations, which, associated with tremor of the lips and tongue, insomnia and digestive disorders, completed the clinical picture of delirium tremens. These symptoms showed some tendency to abate after a few days, when a severe epileptic attack occurred, followed by acute febrile delirium and death from asphyxia.

The *post-mortem* examination disclosed the presence of several tubercular tumours growing from the pia mater over a limited area of the cortex of the left frontal lobe. A minute histological examination

showed (1) very limited destruction of nervous tissue adjoining the tuberculous growths; (2) an intense meningitic reaction in the immediate neighbourhood of the growths; (3) a more moderate reaction, chiefly characterised by leucocytic infiltration, in the meninges farther away; and (4) a similar moderate inflammatory reaction in the cortex of both hemispheres. The authors sum up the condition as a combination of isolated tubercles with a diffuse meningo-encephalitis not of tuberculous nature; and they interpret the clinical manifestations by connecting the early phase of excitement and its loquacity and exaggerated energy with the frontal growths, while the appearance of delirium tremens would in their view date from the development of the meningo-encephalitis. They suggest that delirium tremens is to be regarded as a symptom-complex which constitutes the ordinary mode of reaction in alcoholics to any cortical irritation.

W. C. SULLIVAN.

Obsessions, "Microbo-phobia," etc., in a girl, æt. 12 [*Obsessions, microbo-phobie, préoccupations hypochondriaques et scrupules chez une fillette de 12 ans*]. (*Bull. Soc. Clin. Méd. Ment.*, July, 1910.) Briand, M., and Brissot, M.

Most writers look on insanity as of rare occurrence in children. These authors, on the contrary, find that phobias and obsessions are comparatively frequent in young subjects. If the early history of adult cases be inquired into it will be found that many of them have had such symptoms when young.

The case under consideration is that of a little girl, æt. 12, with strong nervous heredity, father and mother being of melancholic, neurotic, nature, and a maternal aunt having been insane. She had a fairly normal infancy, no serious illnesses, but rather nervous and subject to headaches. For a few months before this attack, she had been restless and preoccupied, but the immediate cause of her mental symptoms was a lesson which was given at school, in which the children were impressed with the need of cleanliness, and told of the danger of infection from spitting, etc. She became obsessed with the idea that she might contract tuberculosis, and developed an extreme dread of touching anything which might possibly be infected. If she saw anyone spit near her in the street she rushed home in terror, weeping bitterly, and would not rest until she had a bath and had her clothes changed. She then felt a distinct sense of relief and well-being. She was full of scruples; feared she had injured her parents, or omitted confessing some fault, and had a horror of funerals or anything pertaining to the dead. It is interesting to note that these symptoms are almost identical with those exhibited by her aunt, whose attack came on at the age of seventeen. The authors give a bad prognosis.

W. STARKEY.

Cerebro-spinal Meningitis, with Mental Symptoms Predominantly Maniacal [*Déterminations psychiques à prédominance maniaque au cours d'une méningite cérébro-spinale*]. (*Gaz. des Hôp.*, Nov. 22nd, 1910.) Merklen, P.

A minute analysis of the mental symptoms in a girl, æt. 6, the subject of cerebro-spinal meningitis, which ended in recovery. In contrast

with their frequency in adults, mental disturbances play a relatively small part in the young subjects of this disease. Only at the onset of the illness had this child the mental condition so usually found in states of intoxication, *i.e.*, acute confusion. During the remainder of the illness she had brief attacks of stupor, associated with asthenia, alternating with a maniacal condition accompanied by motor restlessness. She was very loquacious, with a tendency to rhyming; her attention could not be held; stereotyped phrases played a prominent part in her conversation, and on one occasion hallucinations were present. She was not disorientated, and was quite aware that she was ill; thus it is obvious that, while the automatic centres were sufficiently intoxicated to produce a state of mania, the higher centres were not enough involved to lead to true confusion. This latter condition, implying, as it does, a more generalised infection of greater intensity, is of much graver significance.

W. STARKEY.

Senile General Paralysis and Presbyophrenia [*Paralysie générale sénile et Presbyophrénie*]. (*Bull. Soc. Clin. Méd. Ment.*, July, 1910.) Trénel, M., and Libert, A.

General paralysis is rare over sixty. According to different authors the proportion of cases is from 0.7 to 2 per cent. The diagnosis is rendered difficult through the frequent co-existence of signs of focal lesions in the aged. The character of the dementia is not always typical, the pupillary signs often absent, and fits of rare occurrence. Remissions do not take place, the physical deterioration is rapid, and the course of the affection is short. Two cases are recorded in this paper, in one of which no doubt was possible as to the nature of the complaint, although the patient was an old woman, *æt.* 70; the second case had many points in common with senile mania, but the absence of the knee-jerks and the sluggish pupillary reactions suggest general paralysis.

W. STARKEY.

A Method of Estimating the Degree of Intelligence of the Backward [*Mesure de l'intelligence chez les arrières*]. (*L'Echo Méd. du Nord.*, June 5th, 1910.) Damaye, Henri.

The author points out that this great work of specially educating the abnormal child, begun by Séguin and continued by Bourneville, has now become a public duty, and that it is recognised that as much care as is given to the tubercular or weakly child is due to the abnormal. He divides the children into—(1) Complete idiocy—vegetable existence; (2) profound idiocy with very few and rudimentary ideas; (3) imbecility—very limited and often perverted ideas—those who cannot be educated beyond reading, writing, and addition; (4) weakminded (*syn.*: simple-minded, deficient) who have more initiative and the ability to acquire new ideas, and who can be educated by special means depending on their age and surroundings.

There are intermediary stages connecting these main groups.

The idiot cannot be taught; the imbecile can learn manual labour, but only under strict supervision, and is a danger when not under control in hospital, and will steal, commit arson, etc.

He gives a scheme for rapidly and clinically estimating the intellec-

tual level of the child by asking a set series of simple questions divided into twenty groups according to their subject, and gives 5 marks for each set, so that a total of a hundred marks is expected of the normal child.

He places 60 to 99 as weak-minded, 30 to 50 as imbecile, and below 20 as idiots, with undefined periods between 20 and 30 and 50 and 60. His groups for marking are: (1) External appearance—neatness, etc. (2) Power of speech, articulation, flow of ideas. (3) Name, christian name, date and place of birth, etc. (4) Questions about number, ages, names of parents, brothers, etc. (5) Questions about age, *e.g.*, what is old, etc. (6) Questions about body—put out tongue, touch legs, etc. (7) Movements—direct him to do simple movements, and then those requiring concentration of attention and fine movements. (8) To name certain objects—key, pencil, etc. (9) Hunger, thirst, meals, etc., dreams, contradictory suggestions in questions. (10) Ideas of time. (11) Ideas of place. (12) Idea of nationality. (13) Ideas of soldiering. (14) Can he read, and how does he do it? (15) Can he write, and how does he do it? Kind of mistakes. (16) Mental arithmetic. (17) Copying of drawings, squares, triangles, etc. (18) Questions about trade of parents, and about the natures of different trades. (19) Religion. (20) Marks for attention and understanding.

He points out that this method has been criticised for including subjects that have to be learnt at school, as the aptitude for learning is not always proportional to the capacity for adaptation to social environment, but at the same time he claims that a fixed set of questions like this enables one to form a speedy idea as to the utility of special education, and also allows different people to classify on the same lines—as he has found that different people get approximately the same results for the same child. He has, with his colleagues, thus examined 250 children.

M. A. COLLINS.

The Epileptic Disposition [*Du Caractere epileptique*]. (*Rev. de Psychiat.*, June, 1910.) Soukhanoff, Serge.

Certain pathological mental phenomena are found in many epileptics. (1) Irritability; great outbursts of temper for slight causes; a desire to do harm; grumbling and spite against those they like well. (2) Abnormal obstinacy; morbid *amour-propre*, and much unwillingness to give way to the opinion of others. This is common to all mankind, but the reasonable man, though declining to give in at the time, will give way on the morrow, but not so the epileptic. (3) Impulsiveness; often a great inconvenience to others; it is noted among great men and geniuses. (4) Defect of reasoning powers; they cannot look at things from any point of view but their own. (5) A marked moral obliquity is often found together with a strong desire to find fault, and to have no sympathy with the sufferings or unhappiness of others. (6) A love of mocking and teasing others with deliberate intent to upset them; this is the basis of their occasional gross cruelty. (7) A very high opinion of their own personal attainments, and a love of preaching or teaching others, especially their inferiors, and those who cannot get away from them.

M. A. COLLINS.

Stereotypy and other Katatonic Phenomena in Idiots [*Ueber Stereotypien und sonstige katatonische Erscheinungen bei Idioten*]. (*Zeitschr. f. d. gesamt. Neurol. u. Psychiat.*, H. 3, Bd. iv, 1911.) Plaskuda, W.

Since Kahlbaum first described katatonia, research has shown that, though the symptoms included in this syndrome appear chiefly in dementia præcox, yet they are also to be found in the most various psychoses, e.g., in general paralysis (Knecht), in manic-depressive insanity (Pfersdorf), and in senile mental conditions (Gaupp). Kraepelin has observed catalepsy, echolalia, and echopraxis in cases of epilepsy, general paralysis, alcoholism, and traumatic cerebral abscess.

Very little attention has hitherto been devoted to the occurrence of katatonic symptoms in idiocy, except by Weygandt and Vogt. They are, however, very frequent and striking—stereotypies of speech, movement, and position, catalepsy, and echolalia may all be observed.

According to the author's experience, stereotypies occur almost exclusively in the lower grades of idiocy. Out of 255 low-grade idiots, 152 exhibited stereotypies of one kind or another. The most frequent consisted of rhythmical to-and-fro balancing movements of the body. Catalepsy, echolalia, and echopraxis were observed in 11 cases. Rhythmical phrases or inarticulate sounds are common phenomena in idiocy. Stereotypies of position are rarer than those of movement. When they do occur the similarity to katatonia is very marked.

Sometimes the stereotyped movements involve injury to the patient, e.g., in one of the author's cases, where the forehead was struck rhythmically with the fist, an extensive ulcer had developed over the area affected. By giving the patient a ribbon to hold, his attention could be diverted, and the movement ceased. If the ribbon was removed, however, the stereotypy immediately recommenced. This method of diversion is to be recommended in all similar cases, and is much preferable to restraint.

The stereotypies displayed by idiots generally cease at once if the patient's attention is engaged by conversation or some other means. The possibility of thus influencing and controlling the movements is a point of prime importance in the differentiation from katatonia.

Amongst other points in differential diagnosis the following may be mentioned: In cases of idiocy only isolated katatonic phenomena occur; for the diagnosis of katatonia the presence of the whole symptom-complex is necessary. In general, moreover, the stereotypies of idiots are quite simple rhythmic movements, whereas in dementia præcox they are relatively complicated.

Some authorities—Masoin, for example—consider the cases of idiocy which exhibit these symptoms to be instances of genuine katatonia, and regard hebephrenia as late idiocy. The present author does not share this view. The predominance of the phenomena in low-grade idiots speaks strongly against it.

BERNARD HART.

A Case of Emotional Aphasia [*Un cas d'aphasie de nature émotive*]. (*Journ. de Psychol.*, Jan.-Feb., 1911.) Hesnard.

The subject of this paper was a young man, æt. 19. Previous to this attack he had shown no neuropathic symptoms, though when provoked

he had tended to give way to violent temper. The wife of his foreman had taken some interest in him, and had thereby aroused the jealousy of her husband. One day, the latter discovered the couple in friendly conversation, and, falling into a rage, abused the young man and threatened to send him to prison. Though overcome with passion at this unjust outburst, the victim restrained himself from striking his superior, and fled to his comrades. Wishing to tell them of his troubles he found himself unable to speak. This excited him the more, and he began to violently gesticulate and rush wildly about. His friends thought he was demented and took him to the asylum.

He was admitted in a state of great excitement and anguish, striving to indicate by gestures that he was unable to speak. His eyes were injected, the tongue was dry, the skin covered with profuse perspiration, and he was trembling violently, evidently the prey to a strong emotion. Having been soothed he was able to explain his trouble by writing. He was able to understand what was said to him, write to dictation, and emit sounds obviously corresponding to sentences but quite inarticulate. After a brief period with encouragement and explanation the speech was restored.

The writer distinguishes this case from the ordinary hysterical type. There was no stigmata of the disorder, and no mental representations which could be regarded as the basis of the aphasic condition. He considers that the attack was an exaggeration of a purely physiological state—the result of inhibition due to a strong emotion. The patient furnishes an example of what has been described as the “emotional constitution,” which reveals itself by intensity and diffusion of the mental and physical effects of an emotion.

H. DEVINE.

5. Pathology of Insanity.

Contribution to the Pathological Anatomy of Korsakow's Psychoses
[*Beitrag zur pathologischen Anatomie der Korsakowschen Psychose*].
(*Allg. Zeitschr. f. Psychiat.*, Bd. lxxvii, H. 4.) Thoma, E.

Two typical cases of chronic Korsakow's alcoholic delirium were examined. The microscopical findings (of which there are four illustrations) were as follows: A diffuse general degeneration of the ganglion cells, similar to that found in paralysis. The cortex had an extremely irregular appearance, there being large spaces, displacement of the cells, and at the same time some fairly normal ganglion cells. Degeneration of the medullary fibres was marked, not only in the cord but also in the branches of medullary substance extending to the convolutions, in the radial as well as in the tangential fibres. Very noteworthy was the increase of glia masses and cells as a substitute for the nervous tissue, both in the cortex and in the medullary substance. In one case the vessels were increased in number and the vessel walls were thicker in parts, but showed only slight cell-infiltration of the sheaths. A localisation of the degenerative process in particular parts of the brain was not proved.

HAMILTON C. MARR.

Epilepsy and its Cortico-Meningeal Lesions—Clouding of Consciousness and Dementia [*L'Epilepsie; ses lésions méningo-corticales—Obnubilation et Démence*]. (*L'Echo Méd. du Nord*, July 10th, 1910.)
Damaye, H.

The author states that the frequent absence of macroscopic lesions in the brain or meninges of epileptics leads us to classify epilepsy among the "neuroses," and points out that clinical observations tend in this direction also; he quotes the cessation of epilepsy after trauma to a limb in a woman delivered of a child subject to convulsions, and in *status epilepticus* the cessation of fits both after bleeding and after unsuccessful attempts to find the median cephalic vein. It is certain that toxic elements tend to increase fits; he notes the effects of purgatives, and also a case of influenzal bronchitis in which there was a definite relationship between the fits and the bronchial condition. He excludes cases of tumour, softening, etc., and asks what there is in the pathology of epilepsy which is not often found without it. In general paralysis these cortico-meningeal chronic changes are well marked, but epileptic fits are not always present. Changes found in epilepsy are by no means proportional to the severity of the disease.

Joffroy taught that the origin of epilepsy was in an innate predisposition, and, "philosophical" though this may seem, nothing better has yet been given as a cause. The frequent association of epilepsy with physical and intellectual defects points in the same direction, and toxins cannot produce, but only influence, the onset and frequency of fits. He compares the easy disturbance to depression or excitement of the epileptic with manic-depressive insanity, and remarks that the unstable irritable conditions of the patients is sometimes worse when there are few fits. He considers the pathological changes found to be more likely results than causes. He states that fits are more common in the second half of the night, when the cerebral cells are refreshed; sometimes after a status and during fevers, fits may be absent for a prolonged period; leucocytosis has no influence, and fevers act by depressing cell activity as do the bromides; fits diminish in number and intensity as the patient grows old, owing to the wasting of the cortex.

All the symptoms of advanced dementia may appear with dilated pupils, but these dements, to our surprise, one day recover. This is a state of continuous clouding of consciousness instead of periodical clouding of consciousness, and is best so called, as it differs from ordinary stupor.

This state should be recognised, as it would be curable if any anti-convulsive is ever found. Dementia tends to supervene, however, in all these cases eventually.

M. A. COLLINS.

On a Lesion of the Axis-Cylinder of the Cells of Purkinje [*Sopra una lesione del cilindrase delle cellule del Purkinje*]. (*Ann. d. Neur., Ann. xxviii, fasc. ii.*) Alzona, C.

Since Golgi, in 1874, described certain gross swellings on the course of the axis-cylinders of the nerve-cells in a case of gesticulatory chorea associated with insanity, many other observers have found similar alterations in various affections, and also in experimental intoxications.

Alzona, employing the 1905 method of Cajal, has examined the cerebellum in eighteen cases, comprising eight varieties of mental disturbance. The alterations affecting the axis-cylinders of Purkinjé's cells were the object of special observation. Not infrequently the axis-cylinder was seen to be greatly thickened, appearing as a prominent cord in the granular layer and then becoming of the normal thickness before it mingled with the fibres of the white substance. Sometimes series of swellings and constrictions, more or less numerous and regular, were found on the course of the axis-cylinder. The alteration of greatest note consisted of a club-like termination of the axis-cylinder at a point more or less distant from the cell-body, but most frequently in the upper third of the granular layer, and never in the central white matter. The relation of these swellings to the nerve-fibre was not always evident, and they sometimes appeared to be quite isolated. In favourable sections there was evidence to suggest that all swellings lying immediately below the cells of Purkinjé originated from the axis-cylinders of those cells, whilst the bulbs or swellings in the deeper parts of the granular layer might be at the extremity either of efferent fibres or of fibres coming from the central medulla. Sometimes bulbs were seen which could not definitely be related to an axis-cylinder, and were possibly at the apex of a collateral fibre. These swellings were of various forms, spherical, ovoid, fusiform, sometimes irregularly globular, at other times almost cylindrical and drawn out. They were sometimes homogeneous, sometimes definitely fibrillar. From the lower part of the swelling a fibre was often given off. This was of inconstant thickness, generally paler than the bulbous swelling, sometimes thin and straight, sometimes presenting moniliform swellings alternating with constrictions. It was occasionally a single fibre, but in some cases was composed of several fibrillæ. The course pursued by it varied. Sometimes it became lost in the granular layer, or again it divided into two, one descending towards the white substance, the other turning back towards the pericellular plexuses, becoming lost there or terminating in another large swelling. All these features could be found in one case. The number of swellings varied in different cases and also in different sections from the same piece of cortex. In two only out of eighteen cases were these alterations absent. The presence of these swellings on the course of the axis-cylinders was not always associated with visible alterations of the cell-body. The author concludes that the lesions described are not characteristic of any particular affection, although they are more numerous and widespread in the chronic diseases of the nervous system.

J. H. MACDONALD.

Lipochromes in the Nerve-cells of the Insane [*Lipocromi nelle cellule ganglionari di alienati*]. (*Ann. d. Fren., vol. xx, Fasc. 1.*)
Tirelli, V.

The discovery of fatty pigments in abundance in the cells of the anterior and antero-lateral cornua of the spinal cord and in less amount in the pyramidal cells of the cerebral cortex in a case of idiopathic epilepsy, led Tirelli to undertake a systematic investigation into the nature of these pigments, the extent to which they are normally present

in the nerve-cells of different nervous areas, and their relation to physiological and pathological states. He has arrived at the following conclusions: Lipochromes are normally present in the nerve-cells of the cerebrum, spinal cord and ganglia, their amount being in direct relation to age. They are absent in early infancy and more abundant in later life. They have no definite relation to sex, general state of nutrition, cadaveric decomposition or artefacts of histological technique. In the psychoses associated with epilepsy, idiopathic and symptomatic, the premature appearance of lipochromes, their abundance, diffusion and variety are particularly striking. This finding is not special to epilepsy, for it occurs in many other mental affections, especially progressive paralysis and dementia præcox, in which it shows a direct relation to the severity and duration of the disease. There is no doubt as to the fatty nature of the pigment present in these cases. Its accumulation indicates disturbance of cell-metabolism, but it is only where present in such excess as to interfere with the function of the cell that it acquires pathological value.

J. H. MACDONALD.

6. Treatment of Insanity.

Oxygen Baths in the Treatment of the Insane [*Sauerstoffbäder in der Irrenpflege*]. (*Allg. Zeitschr. f. Psychiat.*, Bd. lxxvii, Heft 5.)
Frötscher and Becker.

Fifty Sarason's ozet baths were supplied for experimental purposes by Messrs. L. Elkan, Berlin, to the State Asylum at Weilmünster. The baths were said to allay excitement and restlessness and induce a tired—not an exhausted—state, and an almost irrepressible desire for sleep, followed by a long, refreshing sleep. They were specially recommended for the treatment of nervous and organic diseases of the heart. As a result of their strengthening, regulating and protective influence on the circulatory system oxygen baths are acknowledged by several authors to have a certain superiority over carbonic acid baths (Müller, Naumann, Schnütgen, Sommer, Tornay, Winternitz, Zuelzer). They have been recommended by Frankl for the treatment of climacteric disorders. Flatau found that they had a restful and sleep-inducing influence in a case of traumatic hysteria with severe insomnia, and in another case of neurasthenic excitement and sleeplessness. All these authors emphasise to a greater or lesser degree the absence of evil results from these baths, and it is suggested that they should take the place of chemical hypnotics.

The effect of the oxygen bath is a certain diminution of the temperature sense—the finer sensations for warmth and coldness being somewhat dulled. Perhaps this is accounted for by the not at all unpleasant feeling caused by bubbles rising on the skin. The baths were prescribed for a lady of fifty-two, not insane, but suffering from insomnia resulting from a generally, not wholly, compensated mitral insufficiency, and who, after taking valerian and bromide preparations, often remained sleepless. After the first bath she was delighted with the extremely restful effect and found the treatment very beneficial.

The baths were then tried on three mental patients suffering from cardiac weakness. It was not certain in these cases whether the motor restlessness was due to the cardiac or to the mental condition. In the first two cases the baths induced sleep and the treatment was successful. The third case, that of a female melancholiac suffering from bronchiolitis tuberculosa, whose condition had gradually got worse, died on October 1st. On the forenoon of that day, she was suffering from increasing cardiac weakness and motor restlessness, and was given an ozet bath. The restlessness continued, however, until the patient became moribund. Cases 4-20, which are fully described, concern sleeplessness and restlessness of purely psychic origin. Except in two cases when they were given during the day to excited patients, the baths were used in place of hypnotics to induce sleep. The results were favourable in cases of mild excitement—cases which might be given about 2 gr. paraldehyde, or at least in emergency 2 gr. chloral hydrate. In such cases, the treatment had a very soothing effect and was most useful. It is also strongly recommended for heart cases, unless at the final stages of the disease, when the baths could not take the place of camphor or ether injections. Unfortunately its high price (2s. 6d. per bath) makes the remedy procurable only in wealthy practices.

HAMILTON C. MARR.

An Experience in Treatment of the Insane without the use of Sedatives.
(*Glasgow Med. Journ.*, November, 1910.) *Ferguson Watson, H.*

During thirteen and a half months, treatment of the insane without the use of sedatives has been tried at the Renfrew Asylum, Dylecbar, near Paisley. The number of cases admitted during the period was 304, of which 148 were men and 156 women, and of these six men and five women died during the thirteen and a half months. No sedative of any sort was given, no form of restraint was employed, no case was under seclusion, and no suicide occurred; there was but one major accident. The writer does not wish to express a formal general disapproval of the use of sedatives, but rather to condemn the habit of giving sedatives in quantity and over prolonged periods to patients who evidently are able to do quite well without them. Detailed accounts are given of six illustrative cases. The writer suggests that cases are easier to treat without sedatives if no sleep is allowed *during the day*. The majority of cases of acute mania and acute melancholia suffer, he continues, from toxæmia, and there would probably be fewer deaths from exhaustion if less attention were given to the sleep record and more to the elimination of the toxin. He suggests routine cholagogue and laxative treatment, and the daily use of a soap-and-water enema. In certain cases the patient tends towards coma after an enema, due to the washing away of adherent mucus from the intestinal wall, and consequent freer absorption of intestinal toxins. The addition of 5 minims of eucalyptus oil to the enema leads to rapid improvement in these cases. The withdrawal every other day of 10 c.c. of blood through a needle passed into the median basilic vein, followed by the injection of 20 c.c. of normal saline solution, has a much more speedy and effective eliminative action in acute insanity than the administration of diuretics. For intestinal atony 5 minims of tincture of nux vomica

should be given thrice daily for several weeks. The writer has found suggestion of value in many cases of acute insanity. The prolonged use of sedatives, he considers, lowers the resistance of all the tissues to microbic infection. Thus the undue use of sedatives may be responsible, in part at least, for the frequency of tuberculosis, pneumonia, furunculosis, etc., in asylums.

M. EDEN PAUL.

Treatment of Epilepsy by Arsenic, Iron, and Bromides in Combination
[*Ueber kombinierte Arsen-Eisen-Brom-Therapie bei Epilepsie*].
(*Psychiat. Neur. Wochensch.*, Nov. 26th, 1910, No. 35.) Schnitzer,
H.

Both iron and arsenic have long been used empirically in the treatment of various forms of anæmia, and with undoubted success; but the *rationale* of the action of these bodies was obscure. An advance in our knowledge of the pharmacology of iron resulted from the discovery of Quincke and Hochhaus, that the iron absorbed from the small intestine was stored in the liver, the spleen, and the bone-marrow; it was inferred that the iron-containing substances stored in these organs were the direct antecedents of hæmatopoiesis. Schmiedeberg, in conjunction with Marfori, succeeded in the synthetic preparation of these organic compounds of iron. The ferri-albuminate of soda was then put on the market under the trade name of "Ferratin"; when additionally combined with arsenic, the substance was called "Arsenferratin"; and the latter in solution was marketed as "Arsenferratose." In view of the favourable reports of the administration of this substance in various anæmic conditions, and in view also of the frequency of anæmia in confirmed epilepsy, Schnitzer gave arsenferratose a trial in various epileptics in whom ordinary iron medication had failed to relieve the concurrent anæmia. The daily doses represented 40 gr. ferratin and $\frac{1}{40}$ gr. of arsenic in organic combination. At the same time bromide of sodium was continued in the ordinary doses.

Detailed reports of eight cases are given (out of a much larger number in which the method was tried with success); the results certainly appear to have been remarkable. After a few weeks, there was perceptible a marked increase in the hæmoglobin contents of the blood, with improvement of hæmatopoiesis. The appetite, the subjective sense of well-being and the body-weight all simultaneously increased. And as this constitutional improvement was effected there was manifest an increased power of resistance to the epileptic paroxysms. In many of the cases, not only were the fits less frequent, but also less severe. Those that had suffered from bromide-acne when taking bromide alone improved in this respect when the arsenferratose was also administered. As the histories show, the cases were selected precisely because they were refractory to ordinary methods of treatment. Long-continued administration of arsenferratose in sensitive patients did not give rise either to gastro-intestinal disturbance or to irritative dental manifestations. The writer's experience thus leads him to recommend an extended trial of arsenferratose, in conjunction with bromide of sodium, in weakly, ill-nourished, and anæmic epileptics.

M. EDEN PAUL.

7. Sociology.

Psychiatric Observation Wards for Mentally Defective Young Persons in Göttingen [*Die psychiatrische Beobachtungsstation für Fürsorgezöglinge in Göttingen*]. (*Allg. Zeitschr. f. Psychiat.*, Bd. lxxvii, H. iv.) Redepenning.

The province of Hanover has made a new departure by opening in July, 1907, an institution for testing the mental abilities of young persons requiring care in reformatories or asylums.

In 2½ years, 72 cases were admitted—54 males and 18 females. The length of time each patient remains under observation is not restricted. A very full and systematic examination is made in each case, and a report submitted to the directors. Tests are made as regards capability of education, of earning a living, of military service; also as regards the necessity of certification, etc. It is emphasised that no stringent rules can be laid down, but that each patient must be judged more according to his behaviour in all practical matters of life than according to his weak-mindedness in a purely medical sense. At the time of writing 27 cases were still under observation, 24 had been diagnosed as slightly weak-minded, 12 as imbecile, 12 were psychopaths without and 5 with imbecility. Five were suffering from dementia præcox. The family histories show chiefly alcoholism of the fathers, criminality, poverty, severe illness and early death of the parents; 95·8 *per cent.* were criminal cases—begging, stealing, and vagabondage were the principal complaints; hooliganism or assaults in about 30 *per cent.*, and arson in 8·3 *per cent.*

Especial difficulties were found in dealing with psychopaths; they are mostly uneducable, criminal, and they seldom require asylum care. It is suggested that some should be sent to reformatories, and that for others a special section of a hospital should be reserved.

In every case tested at the institution, a successful diagnosis was made, and the patient could be installed suitably either in a mental hospital, an institution for epileptics or for idiots, in a training school for defectives, or placed under medical observation. On the whole it is evident that were all defectives tested in this way many tiresome efforts to educate could be spared. In a number of cases, the care of defectives takes place too late, and they are brought to institutions as a result of criminal acts, the prevention of which should have been the aim of earlier training.

HAMILTON C. MARR

The Physiological Effects of Alcohol. (*Dublin Journ. of Med. Sci.*, December 1st, 1910.) Thompson.

In this lecture, written for a popular audience, Prof. Thompson gives a brief account of present-day scientific knowledge regarding the action of alcohol. The lecture is an admirable example of dispassionate and unbiassed treatment of a subject which is usually dealt with in a very different spirit. Prof. Thompson first points out that experiment shows alcohol to have food properties, not only in the sense that it is oxidised in the body, but also in that it is able, within limits, to replace other non-nitrogenous foods. He then refers to its action on the cir-

ulation, and notes that in quantities not exceeding '2 *per cent.* of the circulating blood it exerts a nutrient and sustaining effect on the heart, but that in larger amounts its influence is injurious, and that when it reaches '5 *per cent.* of the circulating blood it acts as a poison. Its influence on the brain is summed up as that of a simple depressant, decreasing the functions of restraint. Finally, as regards its dietetic use, Prof. Thompson rightly insists that we are to be guided rather by clinical experience than by laboratory observation, and he admits that in practice it is found that in many persons alcohol in moderate quantities and in diluted forms increases the appetite and promotes digestion. At the same time it is the author's belief that the same results can be attained without alcohol, and that that drug cannot be regarded as in any way essential, whether as an article of diet or as a medicine.

W. C. SULLIVAN.

Legal Practice regarding Drunkenness as a Ground of Separation and Divorce [*La jurisprudence des tribunaux en matière de séparation de corps et de divorce et les faits d'ivresse*]. (*Communication faite au XXe Congrès des Médecins aliénistes et neurologistes de France et des pays de langue française, 1910.*) Juquelier and Fillassier.

The author gives a summary of the present state of the law on this question in France and Belgium, as laid down in a number of leading cases, from which it appears that the legal view of drunkenness is somewhat undecided in civil as well as in criminal matters. In French law drunkenness can only be admitted as a ground of divorce or separation by bringing it into the category of "*excès, sévices ou injures graves*," and to do this it must be shown that the intoxication was of frequent occurrence, and, according to some authoritative decisions, that it was also attended with public scandal or other special aggravating circumstances. And even when it thus might admittedly constitute by its character a sufficient ground of divorce, it can only be allowed as such if it is the act of a responsible person; and the courts appear occasionally to have stretched the doctrine of irresponsibility in this connection very far. Not only does definite insanity make the drunken person irresponsible, but even, it would seem in some cases, a hereditary instability diminishing the individual's capacity of self-control and his tolerance of alcohol. The authors suggest, however, that on this latter point the position is not quite clear, and that it might possibly be held that an individual knowing by experience his inability to stand alcohol becomes by the fact of that knowledge responsible for acts committed in subsequent drunkenness. An analogous attitude has, it appears, been adopted with regard to the criminal responsibility of morbidly susceptible drinkers.

W. C. SULLIVAN.

A Case of Infanticide with Mutilation [*Un caso di infanticidio con depezzamento criminale*]. (*Arch. di Anthropol. Crim., vol. xxxi, Fasc. 4-5, 1910.*) Mirto.

The question of the mutilation of the dead has been very fully discussed in criminological literature, especially by Lacassagne and his pupils of the Lyons school, partly from the point of view of forensic

medicine, and partly in connection with the psychology of the criminal. Lacassagne, in dealing with the subject under this latter aspect, distinguishes three varieties of mutilation, *viz.*, the religious or sacrificial, the judicial, and the criminal; and Nina Rodriguez has further divided the criminal variety into two main forms—the offensive and the defensive, the former being a mere mutilation for the satisfaction of feelings of hate or in obedience to morbid sexual impulses, while the defensive form is an attempt on the part of the criminal to avoid detection. The practical interest of this distinction is that in the offensive form of criminal mutilation the murderer is always insane, epileptic, or very degenerate, but in the defensive form he may be, and frequently is, relatively normal. The case reported in this paper is given by the author as an illustration of the defensive form. A servant girl, having strangled her newly born child, dismembered the body and put the pieces down a latrine. The way in which the body was cut up, as shown in a photograph of the pieces, resembled in several respects the method followed by cooks in preparing fowls and other animals for the table. This mode of dismemberment, which has been noted in several cases of criminal mutilation, has been termed by Lacassagne “*le procédé de la cuisinière*”; it is usually indicative of the defensive form. In this particular case, the point was of interest, because it had been suggested in defence of the accused girl that the mutilation of the body was evidence of a delirious condition with homicidal and destructive impulses at the confinement, it being further asserted that the girl was predisposed to such impulses by the fact of being weak-minded. The author maintains in opposition to this view that the culprit did not present any of the somatic, functional, or psychic anomalies which, according to the Italian school, are distinctive of the criminal degenerate, and he finds this negative evidence in harmony with the defensive character of the mutilation. He further points out that this case illustrates the fact, specially emphasised by Lombroso, that infanticides rarely belong to the congenital criminal class, because in this form of crime the social are much more important than the anthropological factors.

W. C. SULLIVAN.

Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING of the Association was, by the courtesy of Dr. Edwin Goodall and the Committee of Visitors, held at the Cardiff City Mental Hospital on Thursday, February 23rd, 1911. The President of the Association, Dr. John Macpherson, occupied the Chair.

Present: The President and the following forty-three members: Drs. H. Baird, J. V. Blachford, C. Hubert Bond, E. M. P. Braine-Hartnell, F. St. J. Bullen, James Chambers, L. F. Cox, M. A. Collins, W. Cotton, T. Drapes, J. F. Dixon, J. E. M. Finch, E. Faulks, E. Goodall, J. W. Geddes, John R. Lord, N. Lavers, J. McGregor, C. Mercier, A. Miller, H. C. McBryan, C. S. Morrison, H. Hayes Newington, Bedford

Pierce, J. P. P. Phillips, W. A. Parker, N. R. Phillips, D. F. Rambaut, J. M. Rutherford, John Richards, Rothsay C. Stewart, G. E. Shuttleworth, J. G. Soutar, R. J. Stilwell, B. H. Shaw, J. E. P. Shera, W. H. B. Stoddart, G. H. Savage, R. Percy Smith, James Scott, T. Seymour Tuke, J. D. Thomas, and F. Barton White.

Regrets at inability to be present were received from Drs. Bower, Clouston, Robert Jones, Monnington, Nolan, Briscoe, Hotchkis, Bevan-Lewis, Oswald, Wolseley-Lewis, and others.

Visitors: Alderman Ch. H. Bird (Lord Mayor of Cardiff), J. T. Richards (Deputy ditto), Alderman Morgan Thomas (Chairman Mental Hospital Committee), Mr. C. F. Sanders (Deputy ditto), Mr. John J. Jackson (Director of Education, Cardiff), Mr. W. C. Clifford Smith (Asylums Engineer, L.C.C.), Mr. R. L. Mackenzie Wallis, Drs. E. Tennison Collins, H. A. Schölberg, James Robinson, J.P., R. J. Smith, J. J. E. Beggs, E. Walford (M.O.H.), W. Sheen, W. Mitchell Stevens, E. J. MacLean, R. V. Stanford, and several others.

Council attendance: There had been present at the previous Council meeting: The President, and Drs. Bond, Chambers, Dixon, Drapes, Hayes Newington, Shuttleworth, Percy Smith, Soutar, and Stoddart.

Prior to the afternoon meeting full advantage was taken of the opportunity to inspect the Mental Hospital.

LUNCHEON.

By the kindness of the Lord Mayor, the members were entertained at luncheon in the large hall of the hospital. After a generous repast, to the accompaniment of the strains of a string band, some toasts were honoured.

TOASTS.

The LORD MAYOR proposed "The King" in a few graceful phrases, and it was loyally honoured.

The LORD MAYOR then submitted the toast, "The Medico-Psychological Association of Great Britain and Ireland," coupled with the name of its President, Dr. John Macpherson. He said the Association was probably the largest society of medical specialists in the Kingdom, numbering, as it did, about 700 members. Its special function was to watch over the interests of the insane from a medical and scientific standpoint. In the Association practically all medical men engaged in asylums, both public and private, were included, and the Consultants in Lunacy belonged to it. Also, there were many foreign honorary members. The *Journal of Mental Science* was its organ, and contained many valuable contributions to medical literature. The Association was important in that it granted certificates in mental disorders to medical men who passed its examinations, and it had enormously raised the status of mental nurses. By its system of training and examining mental nurses it had done much for the profession. He was sure the members of their own City Council, who acted on the Committee of the Mental Hospital, would appreciate the advantage of that particular branch of their work. He understood that the Association met only once a year in the country, and the visit to Cardiff therefore showed that its members were particularly interested in the mental hospital of that city. Cardiff had not only the honour of the presence of the members of the Association, of the President and President-Elect, but also other eminent specialists in mental study. For instance, there was Dr. Savage, Consulting Physician in Mental Diseases to Guy's Hospital, and Dr. Charles A. Mercier, Lecturer on Mental Diseases at Charing Cross Hospital. He would like to say a word about the Cardiff Mental Hospital, and to express the hope that its arrangements and organisation would meet with the approval of the members of the Association—men who were particularly qualified to form an opinion on such an important question. He also hoped that the work which the Association would do at Cardiff would be highly interesting to its members, and that their visit to the city would be a pleasant one. It was his pleasure to extend to the Association, on behalf of the city and the members of the City Council, a very hearty welcome. He asked the company to drink to the prosperity of the Association, coupled with the name of Dr. John Macpherson, the President.

Dr. JOHN MACPHERSON, President, responded. He said that, in the name of the Medico-Psychological Association, he desired to express its thanks for the very kindly way in which the Lord Mayor had referred to the members, and to thank the Lord Mayor and the members of the committee for the opportunity afforded of visiting the hospital. He noticed that in their enlightened policy they had dropped the use of the word "asylum." The hospital was well known beyond the bounds of the Principality. He had not yet had the opportunity of seeing it all, but he had seen a good portion of it; and he might say that, speaking generally, they were much impressed with the thoughtful care and wisdom which were displayed in its construction, as well as with the enlightened sympathy which prompted the city to erect an institution so well fitted and so generously adapted to the great purpose it had to subserve. He wished to pay a special tribute to the extraordinary foresight and liberality which led them to establish such magnificent laboratories, and to start them with men who were so capable of utilising them to the best ends. The members of the Association recognised, perhaps better than most people, that an institution of that kind was not completed without a great deal of thought, nor, perhaps, without much animated discussion. But it stood to-day an ornament to the city, and a monument to its public spirit. He believed that the readiest test of the civilisation of any community was the way in which it provided for its insane. Its medical superintendent, Dr. Goodall, was well known in the Association, of which he was an honoured member. His reputation for ability, his intense devotion to that special work in which he was engaged, and his scientific attainments, made the members of the Association more anxious, if that were possible, to see an institution with which his name had become identified. When he said that they were grateful for the opportunity of visiting the institution, he wished it to be understood that he was not simply using a formal polite phrase. For all the kindness which was being shown to the members, he feared they could offer but a very inadequate return, and could only tender their thanks. But he reminded the company that many of those present had travelled long distances to get there, and that among the attributes of that city, accessibility did not rank first. It might perhaps be thought that such a remark came badly from one who hailed from North of the Tweed, but that was a question of where one chose to fix one's centre. There were present gentlemen from England and from Ireland as well as Scotland, which proved that Cardiff had become a sufficiently attractive centre to overcome the mere inconveniences of travel. The Medico-Psychological Association was a society of those whose life-work consisted in the care and treatment of the insane. In pursuance of that object they found it necessary to educate themselves, to keep themselves cognisant of the many changes which distinguished workers, both lay and medical, were constantly introducing throughout the country. That was the principal object of the visit of the Association to Cardiff, and he hoped he had made it clear that the Association had already abundantly profited. If the Association's visit should have the effect of encouraging the authorities at the hospital and of strengthening their hands in any way he would be glad, for if they did not need comfort of that kind they were indeed fortunate. In conclusion, the Association wished them God-speed in the great work they were doing. Members would carry away with them a very pleasant memory of the day's visit, and he assured them that they would go away encouraged in their own special work by the truly educative advancements they had been privileged to see.

Dr. MACPHERSON proposed "The Lord Mayor and Corporation of Cardiff." In doing so he said there was only one feature upon which they, as members of the Association, were competent to express a sound opinion, namely, the extraordinarily fine mental hospital which they had built. If the Corporation approached all their ordinary undertakings with the same enlightenment and the same ideals as they had shown in connection with the construction of that great hospital, they were indeed worthy of the best recognition and emulation. He coupled the toast with the name of the Lord Mayor.

The LORD MAYOR, in reply, said he felt it a great honour to hear the toast of the Lord Mayor and Corporation of Cardiff proposed by a gentleman of the position of Dr. Macpherson. To those who were not members of the Association, but who were members of the Corporation, he would remark that Dr. Macpherson held a very important position in Scotland, being one of His Majesty's Com-

missioners in Lunacy—a position of the very highest importance in that connection. In addition there were present some of the most eminent men in that class of study. They in Cardiff had had several things in mind when building the hospital. They desired to put up a building which would be worthy of both the cause and the city; they desired to construct a place in which the patients could be properly housed and cared for, and in which there would be a fair amount of success in curing patients. That fair amount of success, he was pleased to say, had been attained. But they also desired, by the aid of its very efficient staff, headed by Dr. Goodall, to make the hospital a centre in which some investigation and some advancement might be carried out in the interests of that important science. And they were not without hope, nor without reason in hoping, that they would succeed in that direction. In fact they had already, by the help of their experts, made some distinct advances in certain directions. He felt that the visit of an Association such as this was just the thing required as an incentive not only to their own staff—if they felt the need of such an incentive—but also for the encouragement of the people in the city, their own ratepayers, who perhaps from time to time felt critical about the spending of the ratepayers' money on buildings of the kind. It was one of the most important works which the city had carried on.

Alderman MORGAN THOMAS, J.P., proposed the toast of "The Visitors," coupled with the names of three eminent gentlemen—Dr. Savage, Dr. Mercier, and Dr. Tenison Collins. After remarking on the honour he felt at having the toast to propose he said Dr. Savage was known for his mental science attainments, not only in Great Britain, but throughout the world. He was sure the company would be pleased to know that among the many students who had sat at the feet of Dr. Savage during the past forty years, Dr. Goodall was one of those fortunate ones who had his first training with him. In Dr. Goodall the hospital had a gentleman of eminent standing, and, speaking on behalf of his Committee and the Corporation, they were highly gratified by the intense interest he had taken in the institution from its inception, and also for his unflagging desire not only to give an adequate return to the ratepayers of the city for its outlay at the hospital, but, above all, to do what he could to cure the unfortunate patients. He was sure all would agree that Dr. Savage had done them a distinct honour in coming to join their festive board on that occasion. Dr. Mercier was also a gentleman who occupied a very high position. There was also present Dr. Tenison Collins, one of their own medical staff, who, he was proud to say, had given considerable assistance to Dr. Goodall with regard to the medical side of the institution. He would like to tell members of the Association that the members of the Visiting Committee, also the members of the Corporation who had supported them in their demands upon the funds, that they had realised that the old idea of asylum work was fast fading away, the old heathenish methods and the belief that when anyone was unfortunate enough to come into such an institution it was "all up" with them, and that there was no hope. He thought he could venture to say, even in the ear of so many critics, that he held that any trouble of the mental faculties was as capable of being cured—provided it was not chronic—as any diseases of the body. He remembered that when the institution was being opened there was considerable discussion as to what it should be called. Some people thought the name should be the Cardiff City Asylum; others thought it should be called a hospital, and the latter was the view which was taken by the Medical Superintendent, who said, "I hold that this should be called a hospital, because we do not do our duty unless we do our best, not to detain people, but to cure them." That was the policy which they were doing their best, however imperfectly at times, to carry out in regard to the administration of the hospital.

The toast was pledged with great heartiness.

Dr. SAVAGE, in responding, expressed his surprise at being chosen, as he expected to have to speak at the dinner in the evening, so that these few remarks must be considered as the prologue, and the speech of Dr. Mercier as the epilogue. About four days ago he was called to his telephone. "Who are you?" "*Evening* ———." "What do you want?" "Something about the new cure of insanity." "There is nothing new under the sun." There was another person at the telephone. "Who are you?" "*Daily* ———. Do you know anything about burying alive?" "No personal experience." In replying for the Visitors, he remarked that residents

in the Metropolis were apt to think that all the brilliancy was there. But there were other sources of light and illumination which did credit to the provinces more than to those in London. In fact it was good for London residents to realise that the work being done in the provinces was as good as could be done anywhere. The work being done at that hospital was astonishingly good. When he was Head of Bethlem they took selected cases, and if there were 30 to 40 *per cent.* of cures they considered they were doing well. But Cardiff was doing better than that.

Dr. MERCIER also responded. He said when he received the imposing invitation from the Lord Mayor he was particularly impressed by the coat-of-arms which appeared at the head. Its impressiveness was coupled with certain misgivings as to the fare that would be set before him. The dexter supporter was a goat, and he remembered the spurious venison which so deceived the Patriarch, and the other animal appeared to be a dragon—he did not know whether he diagnosed it rightly—and he did not know whether he might be regaled upon puddings made of dragon's blood. The company could therefore imagine how his misgivings melted into relief, and his relief into satisfaction, and how his satisfaction rapidly rose into ecstasy upon discovering the nature of the fare. There was one element in the coat-of-arms which still gave rise in his mind to a little uncertainty; he referred to that vegetable esculent, which was, he understood, so wholesome, so desirable, but yet so unattractive, that its cultivators were, according to Shakespeare, in the habit of forcing it down the throats of their guests at the point of the sword. He went on to give humorous surmises of the reasons actuating the choice of the various flowers as national emblems, and asked what could have induced Wales to choose the leek.

Dr. TENISON COLLINS also replied.

MINUTES.

The PRESIDENT reminded members that the minutes of the last meeting had already been published in the Journal, and that it was usual to take them as read. This was agreed to, and they were duly signed by the President.

BUSINESS ARISING FROM THE COUNCIL MEETING.

The PRESIDENT said there were two items arising out of the Council meeting which he would like to refer to. Dr. Oswald, of Glasgow, had written to the Council a letter having reference to the publication in the English press of certain details of a speech which he delivered in Glasgow, and which was misreported. Dr. Oswald desired to state that his remarks were not such as appeared in the public press. The other question he wished to mention was that it was thought the Association should send a deputation to the Home Office with regard to the introduction of a bill on the lines of the Departmental Committee upon Inebriety, for the purpose of urging the Home Secretary to introduce such a bill. The Council had recommended that a deputation from the Association, conjointly with deputations from other public bodies, should ask for an interview with the Home Secretary on that important question. He would like to ask that meeting of members whether that suggestion met with approval.

This was agreed to.

The next business was the election of candidates for ordinary membership. The following gentlemen were unanimously elected:

Cox, Donald Maxwell, M.R.C.S., L.R.C.P.Lond., House Physician, Bethlem Royal Hospital, London, S.E. (Proposed by W. H. B. Stoddart, J. G. Porter Phillips, and C. Hubert Bond.)

Heasman, Herbert Wilks, M.R.C.S., L.R.C.P.Lond., House Physician, Bethlem Royal Hospital, London, S.E. (Proposed by W. H. B. Stoddart, J. G. Porter Phillips, and C. Hubert Bond.)

Kerr, James, M.A., M.D., B.C., D.P.H.Cantab. (Medical Officer of the Educational Committee, L.C.C.), 15, Hanger Lane, Ealing, W. (Proposed by G. E. Shuttleworth, H. Hayes Newington, and G. F. Barham.)

Reeve, Ernest Frederick, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, County Asylum, Rainhill, Lancs. (Proposed by J. Wigglesworth, Geo. A. Watson, and C. Hubert Bond.)

INSPECTORSHIP OF LUNATICS FOR IRELAND.

The PRESIDENT intimated that the Irish Division of the Medico-Psychological Association passed a resolution, on a recent date, that in regard to the appointment of an inspector of lunatics for Ireland, which was now imminent, that the Chief Secretary and the Lord Lieutenant should be urged to appoint to that position someone who had had experience in the treatment of the insane and in their care, as well as in the administration of asylums. The Council that day endorsed that resolution of the Irish Division. And, in order to give to that recommendation greater power, he wished to ask whether the present meeting approved of the action of the Council on the matter.

This was agreed to without dissent.

Dr. H. H. SCHÖLBERG and Dr. EDWIN GOODALL (of the Cardiff Mental Hospital) contributed a paper on "The Wassermann Reaction in 172 Cases of Mental Disorder (Cardiff Mental Hospital), and 55 other cases (Cardiff Infirmary, etc.), with Historical Survey." It was discussed by the PRESIDENT, Dr. W. A. PARKER, Dr. G. H. SAVAGE, Dr. PERCY SMITH, Dr. FAULKS, and the readers briefly replied.

Dr. R. V. STANFORD read a paper on "The Production of Indigo in the Human Organism." Remarks on it were offered by Dr. SAVAGE and Dr. GOODALL.

Dr. E. TENISON COLLINS contributed a paper on "Notes on Gynæcological Conditions coincident with Mental Disturbances." Dr. SAVAGE, in the temporary absence of the CHAIRMAN, presided, and expressed his regret that the flight of time prevented a discussion.

Mr. R. L. MACKENZIE-WALLIS communicated a contribution on "Metabolism in the Insane." The time-limit also prevented the discussion of this paper.

DINNER.

In the evening the members, with the Lord Mayor, Alderman Morgan Thomas, J.P., and a number of distinguished medical and lay visitors, dined together at the Royal Hotel, Cardiff.

After the usual loyal toasts had been duly honoured, the CHAIRMAN proposed "The City and Port of Cardiff." The LORD MAYOR responded. Dr. SAVAGE proposed "The Mental Hospital Committee," which was responded to by Alderman MORGAN THOMAS and Dr. GOODALL. The toast of "The Visitors" was proposed by Dr. MERCIER, and Dr. EWAN MACLEAN replied. "The Medico-Psychological Association" was the last toast, proposed by Mr. SHEEN, and replied to by the PRESIDENT.

During the evening some songs were very tastefully rendered by Madame Hambly-Spay and Mr. H. Morgan.

IRISH DIVISION.

A special meeting of the Division was held, by permission of the President of the Association, on Thursday, February 9th, 1911, at the Royal College of Physicians, Dublin. Dr. T. Drapes, President-Elect, was voted to the chair, and there were also present Drs. James J. Fitzgerald, R. R. Leeper, J. Mills, G. F. Shepherd, G. R. Lawless, H. M. Eustace, and W. R. Dawson, Hon. Sec. Regrets for inability to attend were received from Drs. W. Graham, T. P. Coulon, E. O'Neill, and M. J. Nolan.

The subject of the impending vacancy in the office of Inspector of Lunatics was discussed, and in view of the danger that the appointment might be given to someone not an expert in mental disease the following resolution was passed unanimously:

"That the Irish Division of the Medico-Psychological Association would strongly urge on the Irish Members of Parliament the extreme importance, in filling the post about to be vacated by Dr. E. M. Courtenay, Inspector of Lunatics, of selecting a candidate who is specially qualified by actual residence amongst

the insane and by practical acquaintance with modern medical treatment of all varieties of mental disease, as well as by personal experience of asylum administration."

Copies were directed to be sent to all the Irish Members of Parliament. A resolution in similar terms, but with the necessary changes, was also directed to be sent to the Lord Lieutenant of Ireland, the Chief Secretary, the Lord Chancellor, the Inspector of Lunatics, and the Registrar in Lunacy.

After some further discussion the meeting terminated:

BANGOUR VILLAGE.⁽¹⁾

By JOHN KEAY, M.D., F.R.C.P.E., Medical Superintendent.

Bangour Village has been built to accommodate those of the insane poor of the City of Edinburgh for whom asylum care is required.

Previous to the opening of the Royal Asylum at Morningside in 1813, the only provision of a public kind for the insane of the city consisted of the City Bedlam, in addition to about a dozen cells attached to the old Royal Infirmary. In 1844—fifteen years before district asylums were built—the city authorities entered into an arrangement with the managers of the Royal Asylum, under which insane patients of the poorer class were received into that institution. The arrangement held good for sixty years, until the opening of Bangour Village for the reception of patients in 1904.

With the growth of the city the number of insane gradually increased, so that eventually the asylum authorities found their available accommodation insufficient for all those for whom admission was desired.

The inadequacy of the asylum accommodation led first of all to great activity in the boarding out of insane patients in private dwellings, in which movement Edinburgh has always taken a leading place. Additional relief was found by establishing wards for insane patients of the chronic class in connection with one of the city poorhouses; and, finally, taking advantage of spare accommodation wherever it could be found, the Royal Asylum authorities boarded batches of Edinburgh patients in various district asylums throughout the country.

The relief thus obtained, welcome and valuable though it was, did not meet the case, and in 1808 Edinburgh was constituted a Lunacy District, and had to take upon itself the burden of providing an asylum for its own patients. The result is Bangour Village, where we meet to-day.

Having purchased, for the sum of £15,000, the estate of Bangour, extending to 960 acres, and having secured the services of the late Sir John Sibbald as their medical adviser, the question of the kind, or type, of asylum to be built had at once to be decided by the newly constituted District Board of Lunacy. Sir John Sibbald had no hesitation in advocating the adoption of the "segregate" or "village" type, expressing his views in an interesting and instructive little pamphlet *On the Plans of Modern Asylums for the Insane Poor*, and a committee of the District Board having visited many important asylums in this country, in Germany, and in France, strongly endorsed his recommendation.

The asylum of Alt-Scherbitz, near Leipsic, in particular, presented features in construction and in general arrangement which appealed strongly to the committee and to Sir John Sibbald, and our architect, Mr. Blanc, has had many of these features in his mind when evolving the plans of this institution.

Like Alt-Scherbitz, our village is, as you will notice on referring to the plan, divided into two great sections—the Medical and the Industrial—the former corresponding to the Alt-Scherbitz "Central Establishment," and the latter to what is known at Alt-Scherbitz as "The Colony." In our "Medical Section," just as in the Alt-Scherbitz "Central Establishment," are accommodated all patients who for any cause, bodily or mental, require special medical treatment or special supervision. In our "Industrial" Section, corresponding to the Alt-Scherbitz "Colony" are housed those who do not require more than ordinary attention and supervision. They are for the most part capable of being usefully employed, and th

live in homes of a simple character, devoid of any special asylum arrangements, and most of them with open doors.

As will be seen on referring to the ordnance map, the buildings constituting the village are placed near the lower border of the estate, on ground sloping to the south, and near to the Edinburgh and Glasgow road. There are neither boundary walls nor entrance gates; in fact, the boundary fences are those that existed before the grounds became those of an asylum, and not only is the estate bounded on two sides by public roads, but such a road passes through the farm-steading, and close to houses occupied by patients.

Taking the Medical Section first, the buildings therein are the following:

(1) The administration house, containing the usual offices, board room, and dispensary, and quarters for three assistant-physicians.

(2) The admission, or reception wards, for male and for female patients, built on either side of the administration house, and attached thereto by corridors. These wards accommodate forty-six patients of each sex.

(3) The closed villas, for patients requiring continuous or special supervision on account of their mental symptoms. These villas, which are of two sizes, accommodating thirty-two and forty patients, are placed in convenient proximity to the administration house. There are at the present time four closed villas, accommodating seventy-two patients of each sex.

(4) The hospital, of 90 beds, for patients and staff requiring medical care and nursing on account of bodily illness. This building is equipped with a laboratory for clinical work, an electrical department, an operating room, and a lecture room.

(5) The isolation hospital of 20 beds, not yet completed, has as its primary object the separation from their fellows of patients suffering from infective forms of tuberculosis.

(6) The nurses' home, with 88 bedrooms and the usual public rooms, provides accommodation for the nurses employed in the Medical Section, each nurse having her separate bedroom and the use of the public rooms. Some of the higher female officials (matron, assistant matrons, and house secretary), have their quarters in the home. It is staffed by a housekeeper and six maids.

(7) The mortuary, situated at the eastern border of the grounds, has a separate access from the main public road, so that funerals may not pass within sight of the houses occupied by patients.

The buildings of the Medical Section provide accommodation at present for 346 patients, a number which can be increased whenever necessary by simply building more closed villas, or, perhaps preferably, by building an infirmary for senile cases, which tend to accumulate in the hospital. The roads, drains, water-pipes and electric cables have been so laid down that such additional buildings can be erected at any time with the minimum of inconvenience and cost.

Westwards from the Medical Section we come to buildings occupying a somewhat central position, the first of these being—

(1) The recreation hall, in which we have assembled, and which is used in the meantime not only for secular entertainments but for Divine service. We hope, however, some day to have the village church. The hall has accommodation for 700, and cost £7,263, which I am sure you will agree is a moderate figure.

(2) The power station and workshops are equipped with the usual plant and machinery, and adjoining them there is the private railway station.

(3) The bakery.

(4) The kitchen and stores.

(5) The laundry.

In the western portion of the grounds are the buildings comprising the Industrial Section, and of these there are—

(1) Four homes for women, occupying the lower, or southern portion of the grounds, each of them accommodating fifty patients and the necessary staff of nurses. One of these is known as the "laundry home," being situated conveniently near that building, and in it reside the patients employed in the laundry and the central kitchen, as well as the laundry staff. In the construction and arrangements of these homes features suggestive of an asylum have been as far as possible avoided. The rooms are furnished like those of an ordinary house; the doors open with ordinary handles; there are no single rooms.

(2) Five homes for men, standing on the higher and more northerly ground of this section, each of them with accommodation for fifty patients and the necessary staff. The internal arrangements are similar to those in the women's homes.

(3) The farm home, being the old farm house of Bangour, in which are accommodated twelve patients employed about the stading.

The buildings of the Industrial Section thus provide 462 beds for patients, a number which can in the future be increased to the extent considered necessary by adding homes for men and for women.

(4) Finally, there should be mentioned Middleton Hall, situated over two miles away, close to the village of Uphall—a mansion house held on lease by the District Board and providing accommodation for sixty-five patients—fifty women and fifteen men, with the requisite staff.

The buildings, therefore, constituting the asylum provide at present accommodation for 873 patients, made up of 346 in the Medical Section, 462 in the Industrial Section, and 65 at Middleton Hall. In considering the question of cost, it is necessary to keep in view the fact that the admission wards and the hospital, as well as the nurses' home, central kitchen, stores, laundry, power station, recreation hall, and other administrative buildings have been constructed of dimensions calculated on the requirements of an asylum of 1,000 or 1,200 patients, and that in the case of the farm, the water supply, and the sewage disposal works the same generous margin of reserve has been allowed. Consequently, future additions to the accommodation for patients will be made at comparatively small cost.

Edinburgh, with its population of 355,000, has 1,200 rate-supported insane. Seven hundred and forty-five of these are at present resident at Bangour; over 300, or 26 per cent., are boarded out in private dwellings; 105 remain in the Royal Edinburgh Asylum, under an agreement between the managers of that institution and the Parish Council, which expires in 1914; and the remainder are in other asylums or in homes for imbeciles.

There are certain particulars concerning the administration of the Institution which may be of interest to visitors.

(1) *The cost of maintenance.*—The rate of board at present charged for patients belonging to the district—that is, the city of Edinburgh—is £27 per annum. This covers the cost of food, clothing, salaries and wages, washing, etc. It does not include the cost of buildings or their upkeep. The average rate for the district asylums of Scotland is something over £26. Our rate would not be higher than the average for Scotland were it not that our accommodation is not fully occupied. With 745 patients resident there are 128 vacant beds.

(2) *Proportion of nursing staff to patients.*—In the Medical Section the proportion of nurses or attendants to patients is—for day duty 1 to 8, and for night duty 1 to 22. In the Industrial Section the proportions are—1 to 14 for day duty, and 1 to 154 for night duty. Over all the proportions are—for day duty 1 to 11, for night duty 1 to 46.

(3) *The cooking and distribution of food.*—The food is cooked in the central kitchen, and is transported to the various houses in metal boxes, which fit into the compartments of a specially designed wagon drawn by a pair of horses. There is no difficulty in having the food served hot. It is ensured that it leaves the kitchen in a piping hot condition, and it arrives at its destination in the most remote building in fifteen minutes without appreciable loss of heat. The distribution of food costs £150 per annum.

(4) *Water supply.*—Filtered water is supplied by gravitation from a reservoir constructed on the estate at an elevation of 700 feet above sea-level, giving a 200-foot head of water for fire extinguishing purposes. The reservoir has a capacity of 16,000,000 gallons, or about four months' supply. The water-works cost £24,000.

(5) The sewage works are on the bacterial system, with septic tanks and a double set of clinker beds. The works are capable of dealing with 60,000 gallons per day, or the sewage of a population of 1,500. Cost, including drains, £9,500.

(6) Heating is by low pressure hot water, each house having two furnaces with boilers in a basement chamber, one for the supply of hot water for domestic purposes, and the other for that required for heating the rooms. These furnaces burn coke, so that smoke may be avoided.

(7) Ventilation is by the natural method—open doors and windows, assisted by air inlets placed behind the radiators.

COST AS AT MAY 15TH, 1910.

	£	s.	d.	£	s.	d.
Land	15,193	0	0			
Water	23,934	17	4			
Sewage disposal works and drains ...	9,471	6	0			
Roads and grounds	18,239	18	1			
Railway	38,240	16	6			
Power station and workshops ...	8,916	14	3			
Steam and electric plant, cables, etc. ...	16,805	15	5			
Fees and outlays of architects, measurers, and engineers; salaries of clerks of works; schedules and record plans, etc.	28,367	0	0			
				159,169	7	7
Administration house and admission wards	25,689	4	6			
Closed villas	22,088	10	2			
Hospital	14,759	2	2			
Isolation hospital	1,470	5	1			
Mortuary	1,197	3	9			
Nurses' home	12,006	12	5			
Recreation hall	7,263	8	3			
Bakery	2,433	17	9			
Kitchen and stores	9,652	9	10			
Laundry	7,652	16	9			
Industrial homes for women ...	21,753	8	9			
Industrial homes for men ...	19,127	7	5			
Farm buildings (alterations and additions) and greenhouse	7,143	14	0			
Houses for staff	6,691	17	5			
Furnishings	17,372	4	6			
Sundries (grates, mantelpieces, blinds, locks, electric clocks, fire appliances) ...	2,796	8	0			
				179,098	10	9
Total				£338,267	18	4

ACCOMMODATION FOR PATIENTS.

	Male.	Female.	Total.
Admission wards	46	46	92
Hospital	45	45	90
Isolation hospital	10	10	20
Closed villas	72	72	144
Industrial homes	250	200	450
Farm house*	12	—	12
Middleton hall†	15	50	65
	450	423	873

* Cost of altering, painting and furnishing only included above.

† Held on lease. No expenditure connected therewith included above.

(1) This description was communicated to the members of the Medico-Psychological Association, who visited Bangour Village on July 23rd, 1910.

VACANT INSPECTORSHIP OF LUNATICS, IRELAND— APPOINTMENT.

Members of the Association throughout the three kingdoms will hear with pleasure that the Irish Government has seen the reasonableness of the request made by the Irish Division. It is somewhat surprising in these days, when "efficiency" in all departments of public service is so much talked of, that the Government should need reminding that an appointment like the Inspectorship in Lunacy exists for the benefit of lunacy patients and not *vice versa*. We are unable, however, on this occasion to criticise the Government's choice, which has fallen upon Dr. W. R. Dawson, F.R.C.P.I., of Farnham House, Finglas, Dublin, and we offer both our hearty congratulations.

THE HAND-BOOK.

The satisfactory sales of the *Hand-Book* have necessitated a fresh issue of 5,000 bringing up the total printed to 38,000. The Council has authorised the amendment of one or two small matters pointed out. If any member has found any defect that can be remedied under the following conditions, he should send notice of it forthwith to the Chairman of the Hand-Book Committee, The Gables, Ticehurst. It should be clearly understood that no addition of further matter can be made, nor any alteration of plan or idea. All that is permissible is the correction of errors, in such a manner as not to lead to serious alteration of type, and certainly not to alterations in pagination.

THE RETIREMENT OF DR. T. B. HYSLOP FROM BETHLEM HOSPITAL.

After twenty-three years of service in Bethlem Hospital Dr. Hyslop has retired from his official position, being about to undertake the work of a consultant specialist in London. The staff, prior to his leaving the Hospital, presented Dr. Hyslop with an illuminated address as an expression of their regret at his retirement, of their appreciation of the many benefits they had derived from his administration of the Hospital, and of their personal esteem.

Dr. Hyslop's scientific and literary work, together with his many-sided artistic acquirements, ensure him a prominent position in his new sphere of activity.

SOCIETY OF PSYCHIATRY OF PARIS.

Dr. Clouston, of Edinburgh, and his successor, Dr. George M. Robertson, Lecturer on Mental Diseases in the University of Edinburgh, and Physician Superintendent of the Royal Morningside Asylum, Edinburgh, have been elected Corresponding Members of the Société de Psychiatrie of Paris.

Dr. Henry Rayner, of London, and Dr. Urquhart, of Perth, have also been elected Corresponding Members.

THE LIBRARY OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Library is open daily for reading, and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from the lending library belonging to that firm should any desired book not be in the Association's Library.

Dr. Chambers has kindly offered to subscribe to the *Annales Medico-Psychologiques*, and to forward each number to the Library at the expiration of a fortnight.

The Library Committee is indebted to Dr. H. Hayes Newington for the presentation of the following books:

Harrison.—*Lunacy Law of the U.S.A. and other Countries* (1884).

Wakefield Reports (6 vols.).

Feuchterben.—*Medical Psychology* (Sydenham Society, 1847-8).

Long Fox.—*Pathological Anatomy of the Nervous Centres* (1874).

Campbell Clarke.—*Mental Diseases* (1897).

W. W. Ireland.—*Mental Affections of Children* (1898).

M. de Fleury.—*Medicine of the Mind* (1900).

Spurzheim.—*Observations on Insanity* (1817).

Van der Kolk.—*On the Spinal Cord, Medulla Oblongata, and Epilepsy* (New Sydenham Society, 1859).

Van der Kolk.—*Selected Monographs* (New Sydenham Society, 1861).

A. W. Campbell.—*Localisation of Cerebral Function* (1905).

Handbook for Attendants, 4th edition.

Statistical Committee's First and Further Reports (Medico-Psychological Association).

Applications for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos St., Cavendish Sq., W. Other communications should be addressed to the undersigned at Long Grove Asylum, Epsom.

BERNARD HART,

Hon. Secretary, Library Committee.

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VOL. LVII.

Part I.—Original Articles.

*Morison Lectures.—The Differentiation of Melancholia,
the Depressive Phase of Manic-Depressive Insanity.*
By GEORGE M. ROBERTSON, M.B., F.R.C.P.Ed.

I.

MELANCHOLIA is by far the commonest form of mental disorder that can be regarded as a true insanity, and from its general manageability is very often treated at home. A knowledge of it is therefore useful to the practising physician. There is another reason which increases the importance of this knowledge. Melancholia is always dangerous owing to the possibility of the patient taking his own life, and the presence of a tendency or desire to commit suicide is not sufficiently recognised by the members of the medical profession. It exists at one stage or another during the course of practically every case.

Melancholia is also a most instructive form of insanity. Its symptoms are simple in character and can be easily studied, for they show a lesser degree of departure from the normal than those of any other form. The melancholic patient realises that he is sick in mind; he usually consults his physician on account of his symptoms, and sometimes he even insists on entering a mental hospital as a voluntary patient. Owing to this real insight into his condition, which is absent in most

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other forms of insanity, and to the fact that his intellect is not confused, he is able to give valuable help in the analysis of his symptoms.

Finally, during the last fifteen years new ideas regarding melancholia have developed which have completely altered our conception of the nature of the disease and its relationships, and these have added accuracy to its symptomatology and prognosis. A reference to these new facts may therefore be interesting and useful to those who have not made a special study of this subject.

The term "melancholia" was until recently employed in a very wide and inclusive sense. It comprised all morbid states accompanied by depressed feelings—all conditions of mental depression. More than a third of all the patients admitted into our mental hospitals were diagnosed to be suffering from it, and mania or melancholia between them accounted for 80 to 90 *per cent.* of the total admissions. All cases were grouped together under this term, however dissimilar they might be in such important matters as pathology, symptomatology, and termination, provided that they agreed in this single respect, that they suffered in common from the presence of a depressed or painful emotional condition. There is no doubt that differentiation was defective, and that mental disorders which were essentially different from one another were grouped together.

In all other departments of medicine the differentiation of disease is based upon pathological anatomy. In the department of mental disease, save in a few exceptional cases, this is not yet the case, and we are dependent for our symptomatology and differentiation upon the accuracy of our clinical observations. This is not a method to be despised, but it is a difficult and dangerous one when our observations cannot be checked and confirmed by pathological findings. In melancholia there are no definite microscopical changes in the brain or the nervous system, but nevertheless the diagnosis and differentiation of the disease has been placed of late on a surer basis by increased accuracy of clinical observation in the following directions.

In the first place, all patients suffering from melancholia, as the name indicates, suffer from feelings of a painful or depressed nature, but all patients who happen to be depressed are not

now diagnosed to be cases of melancholia. The term is now restricted to those cases in which painful or depressed feeling is *the primary and fundamental disorder* of the mind. This distinction is a most important one, for it throws out of this group many cases, possibly two-thirds, which were formerly included in it. For example, we would not diagnose as a case of melancholia a man suffering from systematised delusions of persecution, however depressed he might be at the moment of examination, even were he to commit suicide. In this case the fundamental disorder is an intellectual one, namely, the presence of delusions, and any acute emotional condition that may temporarily exist is secondary to the delusions. There are other important differences which prove that the distinction is a scientific one. Delusional insanity is usually accompanied by hallucinations, and often by hallucinations of more than one sense. It is also usually incurable. In both these respects it differs from melancholia, and its exclusion on the ground that it is not fundamentally an emotional disorder is a sound one.

For similar reasons delirious melancholia or delirious (confusional) insanity of a melancholy type is excluded from this group. In delirious insanity, of which delirium tremens and most of the very acute cases of puerperal insanity may be taken as types, the fundamental symptom is a general disorder of the mind. There are intellectual confusion, vivid hallucinations, and excitement of all the emotions. It is true that anxiety is usually the prevailing emotion, but the terrified patient of one moment may be furious the next and may subsequently indulge in roars of laughter. The causation, symptoms, duration and termination of delirious insanity are quite different from those of true melancholia, and as most of the cases of so-called agitated melancholia are of this type, they also are now excluded from this conception of melancholia. Melancholia is therefore primarily and essentially a disorder of the painful emotions—of those emotions which produce in consciousness feelings of despondency, fear, anxiety, despair, in fact all feelings of a painful or depressing nature—the converse or antithesis of melancholia, namely disorder of those emotions which produce feelings of exaltation and happiness, is mania. Melancholia and mania are thus respectively the disordered states of the two great groups of the emotions—the

inhibitory and the excitory, into which Wundt subdivided the emotions.

In the next place, in our conception of melancholia we now take into consideration and review the whole course of the disease—the complete picture of all its symptoms, and termination. If we commit ourselves to a definite diagnosis we must be prepared to forecast this course. In the past we did not hesitate to diagnose melancholia from the symptoms only, as observed at the time of examination, and the subsequent course and termination of the disease did not enter seriously into the question of diagnosis. This suspended diagnosis and extended period of observation has led to the discovery of clinical facts of great importance previously unsuspected. For example, it has brought home to us that melancholia as we now know it is very closely associated with mania. It had long been known that mania may be ushered in by a short period of depression, to which the name of the *stadium melancholicum* was given. It was not previously realised how often after an attack of melancholia there was a period of a few weeks' duration in which there was apparently a swing of the emotional pendulum the other way, with feelings of mild maniacal exultation.

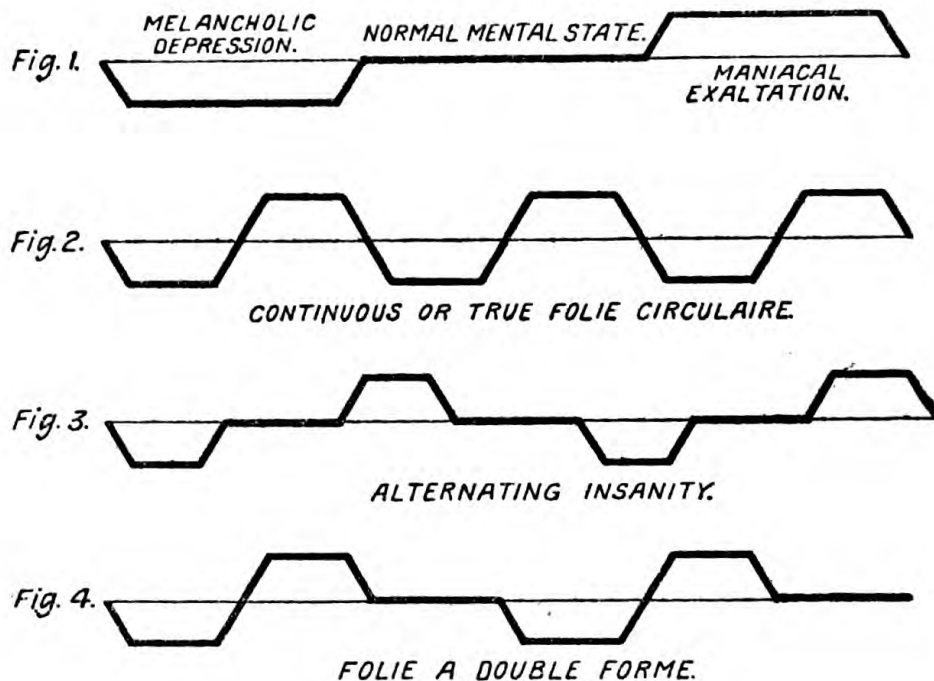
We thus come to the threshold of the great discovery made by Kraepelin, that mania and melancholia as defined are so closely related to one another that they are probably different manifestations of the same underlying disease-process. They are both alike in being primarily disorders of the emotions, though the two conditions, so far as their symptoms are concerned, are the very antithesis of one another. They are, however, not more unlike than some of the phenomena of epilepsy are to one another, and these are now universally held to be all equivalent manifestations of the same epileptic process. To this new conception Kraepelin gave the name of "mania-melancholia" or "manic-depressive insanity," for according to his hypothesis mania and melancholia are different phases of one disease.

Strong confirmation is given to the above hypothesis by the existence of a kind of mental disorder, which has been well known for a long time under the name of *folie circulaire*. It is impossible to fail to recognise this form in typical examples, because of the dramatic contrast between its phases of

depression and exaltation and the regularity with which these recur, not only in point of time, but in the accurate repetition of the symptoms in each successive attack. In one phase the patient looks the picture of misery. He seldom speaks, and when he does it is to utter gloomy ideas in mournful tones. He sits idly doing nothing, absorbed in his dismal thoughts, and even refusing to take food. After a period of depression lasting three months or so he begins to look less woe-begone, and is found to answer questions more readily. In a few days more he is in good spirits and active in his movements. Before long he becomes boisterous in his manner, fussing about and interfering with everybody and never ceasing to talk. This phase of exaltation lasts about the same length of time as that of depression, and it then gradually subsides till he again passes into the shades of profound gloom for another period of three months. Great differences are met in the order of the alternations, in the duration of the phases, and in the regularity of the recurrence. The alternations may, however, follow one another with the utmost regularity, and the manifestations of insanity may be repeated at each recurring phase with exactness. One former patient at Morningside was so good an example of this that his stage of maniacal exaltation could be accurately gauged by the clothes he wore. At the very beginning of the period of exaltation he would add white spats to his costume. As the attack developed he would appear in a knickerbocker suit of loud pattern. Finally the climax was reached when he paraded Prince's Street in Highland garb.

Till Kraepelin made his generalisation of manic-depressive insanity, *folie circulaire* was found to be a most awkward form to place in any classification of insanity. It could not be put wholly either into mania nor into melancholia as it partook of the features of both. It was therefore usually placed in a class by itself, apart from both—a procedure which cast doubt upon the very principle of the classification adopted. The problem has at last been solved by this conception of manic-depressive insanity, and it now finds a place which it fits as accurately as the last piece which completes a jig-saw picture puzzle. This anomalous form of insanity has also been the means of adding accuracy to the differentiation of mania and melancholia from other forms of insanity by supplying an

index of their symptoms. These in true mania and melancholia should harmonise with those found in typical cases of *folie circulaire*, which is only a form of mania and melancholia in which the tendency to alternation and relapse is strongly marked. The most likely forms of insanity to be confused with this group are the persecuted varieties of delusional insanity, anxious types of delirious (confusional) insanity, and depressive forms of dementia præcox. Any case which presents symptoms which do not conform to those found



in *folie circulaire* should, however, be excluded from the manic-depressive group and diagnosed otherwise.

Folie circulaire being a key to the symptoms of melancholia—the depressed phase of manic-depressive insanity—attention is directed to a series of diagrams illustrating different varieties of it. In these diagrams the straight line indicates the normal mental condition, a curve above this indicates a state of exaltation or the maniacal phase of *folie circulaire*, and a curve below, the phase of depression or melancholia (Fig. 1). The second diagram represents the true or continuous form of

folie circulaire. In this form the one phase alternates with and follows the other without any sane interval, so that the patient is continuously insane. In the third diagram each phase of insanity is followed by an interval of complete sanity. This is sometimes called alternating insanity, as each separate



attack of insanity is recovered from and alternates in character from the one which preceded it and from the one which will succeed it after a sane interval. In the fourth diagram there is represented a variety of *folie circulaire* which is sometimes called *folie à double forme*, because each separate attack of insanity, followed by a period of complete recovery, always consists of a combination of the two phases. In these diagrams the first attack is represented as being one of melancholia, but this is not invariably the case. The recur-

rence of each phase and of its duration has also been made very regular, but this likewise does not always occur.

The first striking feature brought out by a study of these diagrams is the tendency to periodicity or relapse. If, then, the symptoms of *folie circulaire* be regarded as supplying an index to the symptoms of melancholia, and a life-history of a patient who has suffered from an attack of melancholia be carefully followed with this fact in mind, the same feature is also observed. It very seldom happens that a patient has only one attack of melancholia in his life-time, unless the first attack occurs very late in life, and the great majority of these persons have one or two relapses. If the first attack occurs during adolescence, it may with great certainty be predicted that later in life a second or a third attack will follow, and these tend to occur at the climacteric and senile periods of life. This is shown in graphic form in diagram 5. Melancholia is therefore a periodic or recurring disease, the periodicity being usually very irregular in character. There are, however, cases known as relapsing or recurrent melancholia, in which the attacks are numerous and follow one another closely, and these strongly confirm the opinion of the periodic nature of the disease and its relationship to *folie circulaire*. This has been illustrated in diagram 6. Records of a patient are in our possession who has suffered from fifteen attacks of recurrent melancholia in ten years, the patient being well on an average of five and one-third and melancholic for two and two-thirds months. The periodicity was very regular at one stage and very irregular at another.

A second feature brought out by these diagrams is the tendency to alternation of the form of the insanity. It has just been stated that if the life-history of a person who has suffered from melancholia be followed, it is observed he has one or two relapses later in life (see diagram 5). In a large percentage of cases—practically in all those in whom there is a considerable number of recurrences—it is found that one or more of these relapses are not of melancholia, but are attacks of mania. Indeed it appears to be a matter of great uncertainty whether the subsequent attacks will be of melancholia or of mania. The person who is subject to attacks of melancholia is thus also subject to attacks of mania (see diagram 7), and this alternation of the psychosis gives

support to the hypothesis that the underlying disease-process in these two conditions is similar in character and it strengthens the bond with *folie circulaire*. It has been already noted that many attacks of melancholia are also followed by a short period of mild mania or exaltation, and that a *stadium melancholicum* may precede an attack of mania (see diagrams 8 and 9).

A third important feature observed in the alternating forms of *folie circulaire* is the tendency to recover, and we know clinically that this recovery is complete, there being little or no tendency towards the production of dementia or enfeeblement of the mind. We know of elderly patients in asylums who have possibly had fifty recurrent attacks of insanity of this type who do not yet show marked signs of mental enfeeblement. In melancholia we observe the same facts, the absence of any dementing process and the good recoveries that are made, even in those cases which have been insane for five or even ten years. These are most important observations, as they indicate that the mental symptoms of melancholia are due to functional derangements of the nerve centres and that the nutrition of the cells is not seriously affected. This fact of cardinal importance at once differentiates melancholia absolutely from the melancholic types of dementia præcox. This is a form of mental disease which was formerly confused with melancholia, but the presence of a strong tendency to dementia and irrecoverability, which is the most outstanding and characteristic feature of dementia præcox, demonstrates the fact that it and melancholia are different diseases. The prognosis as regards recovery from melancholia is therefore extremely good, but the duration of the attack is uncertain and a relapse at a future date is probable. A small percentage of cases may pass into relapsing forms resembling *folie circulaire*.

The last feature of *folie circulaire* to which attention is directed is the question of causation. In most cases of insanity we look for an exciting cause, but all are agreed that in typical *folie circulaire* no known exciting cause exists for the periodic attacks. They develop and follow one another quite independently of any exciting cause in the environment and apparently as the result of internal changes, which periodically ebb and flow in certain neuropathic persons. What these

may be can only be conjectured, but this much is admitted, that of all the forms of insanity, *folie circulaire* appears to be that which can be most accurately described as an idiopathic insanity, which results very largely, if not entirely from the inheritance of an unstable nervous system. The neuropathic descendants of some of our oldest families have provided the most perfect examples of this disorder.

When now we pass to melancholia we find here also that the inherited tendency to nervous disease is very strong indeed—though perhaps not quite so strong as in the case of *folie circulaire*. Usually an exciting cause is given which is alleged to have precipitated the first attack of melancholia, but this cause would very probably have had no evil consequences had the patient not been highly neurotic. In many cases of melancholia, however, as in *folie circulaire*, especially in the subsequent attacks, there is no known exciting cause. It has to be noted that in discussing the cause of melancholia we have excluded from our consideration cases known in the past as agitated or excited melancholia, of which delirium tremens is an excellent example. These we now regard as cases, not of melancholia, but of delirious insanity with confusion and hallucinations, and this is not an idiopathic but an acquired form of mental disease with a definite and usually a toxic cause, and in which hereditary predisposition plays only a secondary part.

On summing up the comparison between *folie circulaire* and melancholia we find that there is harmony between the two as regards a tendency to periodicity and recurrence, a liability to alternate attacks of mania and melancholia, an absence of any tendency to dementia, the prospect of complete recovery between the attacks, a strong hereditary predisposition, and an indefinite exciting cause. They differ as regards these points in degree only. In *folie circulaire* the tendency to periodicity and alternation is much more strongly marked than in melancholia, and it is a question whether this be not merely a result of the greater instability of the nervous system in those suffering from the former disease. Statistics, it is believed, show that neurotic or insane inheritance in *folie circulaire* is greater than in ordinary mania and melancholia. Further proof of the fact is derived from a comparative study of the exciting cause. In the development of every case of

insanity two factors are involved, the internal factor or inheritance and the external factor or exciting cause, and a law has been formulated to the effect that these are usually found to be inversely proportional in their operation. Thus if there be a strong inherited tendency to insanity, the exciting cause is usually very slight or non-existent. On the other hand, if there be no inherited tendency to insanity and the family history be good, then the exciting cause is definite and severe. We know that in attacks of melancholia there is more often a distinct exciting cause than in the periodic relapses of *folie circulaire*, and this fact therefore points to the greater instability of the nervous system in the latter. Persons liable to *folie circulaire* may be compared to bodies in a state of highly unstable equilibrium, while those liable to mania and melancholia are in a more stable condition. A very slight force will upset the equilibrium of the former, whereas a much greater is needed to disturb that of the latter, and the movement of the former when once started will last a much longer time.

We will now formulate our definition of melancholia on the basis of these observations.

Melancholia is a form of insanity in which disorder of painful or inhibitory emotional states is the primary and fundamental symptom, all other mental symptoms being secondary. Its duration varies greatly and may be prolonged, but it ends in recovery in the great majority of cases. There is no tendency towards the production of dementia or permanent enfeeblement of the mind. There is, however, a decided tendency to recurrence or periodicity. It is closely related to mania, with which it is often associated, and with which it tends to alternate. The two states together form the conception of manic-depressive insanity, of which they are regarded as two phases, and equivalent manifestations of the same underlying disease-process. In a small percentage of cases the periodic alternation and recurrence is very marked, and these are known as *folie circulaire*. Hereditary predisposition is believed to be the most important factor in the causation of melancholia, but any stress, such as prolonged anxiety or exhausting diseases, tends to develop it in susceptible persons. It is not accompanied by any definite pathological changes. It is apparently the result of a functional disorder

of those cell-complexes which subserve the production of painful emotions in health, and the exact cause of this is unknown. There is almost always malnutrition, with loss of weight during the course of the disease, which is regained during convalescence.

In conclusion, it requires to be noted to prevent confusion that involution or presenile melancholia, which Kraepelin formerly placed by itself in a different class from manic-depressive insanity, belongs in our opinion to this group. The reasons which appear to have influenced him were that it did not tend to recur nor did it tend to alternate with mania, and that its prognosis was much less favourable than that of manic-depressive insanity. It appears to us that these differences are satisfactorily accounted for by the greater stability of the nervous system in these persons as indicated by the fact that they have only broken down late in life; by the shorter span of life left to them during which relapses might occur, and by the frequent presence of arterio-sclerosis and other organic diseases after the climacteric which operate against recovery. Kraepelin also attaches importance to the presence of retarded or inhibited ideation which is a constant symptom of the depressive phase of manic-depressive insanity, but is absent in involution melancholia. In our opinion retarded or inhibited ideation is not a primary but a secondary symptom, and therefore too much importance should not be given to it, the fundamental symptom being the emotional disorder. We have observed one case of melancholia at the climacteric in which there was marked retarded ideation at the beginning, but after a febrile attack this disappeared, although the melancholic depression continued as it was before. In another case of manic-depressive insanity at the climacteric, the first phase was one of melancholia with retarded ideation, then came a typical period of maniacal exaltation lasting six months, and this has now been succeeded by profound depression, without, however, any trace of retarded ideation on this occasion. Inhibition of ideation is in our opinion, therefore, a secondary and non-fundamental symptom, and melancholia may exist with or without it.

II.

The Symptoms of Melancholia.

Disease is not a separate entity—a something apart which invades the body and declares its presence there by phenomena of its own. Such a conception is a vestige of the crude doctrine of “possession.” The symptoms of disease are the natural functions of the body, performed in an unusual way, the result of unusual physical conditions of a harmful nature. Our text-books are not free from error in this respect, as some authors still divide the varieties of insanity into “homologous and heterologous,” the former having symptoms which are natural and the latter symptoms which are unnatural. In truth, they are all natural, and every symptom met in mental disease can be traced more or less closely to corresponding phenomena in a state of health, of which, according to Maudsley, they are a caricature. It is particularly necessary to accentuate this fact, because the mystery which belongs to every obscure disease becomes intensified when associated with insanity. The next statement is a corollary of the above, that the rational way of studying the symptoms of disease is to study them in association with the corresponding functions in health. Melancholia being primarily and fundamentally a disease of depressed or painful emotions, depressed or painful emotions as they occur in health should be studied as a key to its symptoms.

Emotional Condition—Positive Symptoms.

All cases of melancholia suffer from feelings of a painful nature, and this is at once evident to the observer from their facial expression, their attitude, their gestures, or their melancholic ejaculations or groans. If they be asked whether they feel depressed they will at once admit the fact. The exact shade of painful feeling varies greatly in different cases in the same way as normal feelings of this kind vary. They range from feelings of dulness, gloom, despondency and misery to feelings of fear, apprehension, anxiety and fright. However much these feelings may vary, they are all alike in being of a painful and melancholic nature. They can, however,

be divided into two groups as Darwin indicated long ago in his *Expression of the Emotions*. There is a passive group of which despondency is a type, in which the expression is dull, the attitude is flexed and relaxed, and the patient sits silent and motionless. There is, secondly, an active group, of which anxiety and fright are types, in which the person may be restless and even agitated, and may constantly repeat melancholy phrases or utter loud cries. The phenomena of these two groups overlap, and the symptoms in the same patient may pass from the one variety to the other at different periods. It is nevertheless a useful differentiation, for it explains the relationship of symptoms which are superficially very different from one another. The principal feature of this painful feeling is the fact that it is not a natural reaction to an exciting cause in the environment, such as would produce painful emotions in the mind of a healthy person. It is an internal or subjective condition the result almost certainly of activity in those same groups of cells and fibres which subserve the production of painful states in health. This functional activity is the result of a morbid process which affects these cells and fibres either directly or indirectly and reflexly. This much is certain, that the gloom of the melancholic darkens his life as independently of his mental environment as the heavy clouds that may darken his outlook on a sunny day. It comes unbidden, and its source is a mystery to the patient; he only feels that in an unaccountable manner all joy and brightness have departed from his life and that a settled gloom or anxiety has taken up its abode in his mind for ever. His very delusions, as will be described, are attempts to explain or to account for its presence.

The depression in melancholia as a general rule develops slowly over a period of weeks and even months, gradually becoming more profound and more continuous. It may, however, come on suddenly in the course of a few days after some exciting cause or as suddenly without any known cause. When fully developed it is continuous the whole day long and may not leave the patient for a moment for months at a time. During the period of commencing recovery the first signs of improvement show themselves in the evening, by a lifting up of the gloom. Then there are good days as well as bad days, and finally the depression disappears altogether. Recovery

may, however, take place from melancholia as suddenly as its development, and the patient may go to bed as depressed as usual and find himself well on waking next morning. The period of convalescence is one of great danger if the supervision of the patient has been relaxed owing to his improvement. A relapse of the depressed feeling may occur nearly as suddenly as an epileptic fit, and if the opportunity presents itself he may then commit suicide. One of my female patients after being apparently well for a fortnight relapsed suddenly one Sunday morning on hearing the church bells ring.

It is impossible for us to realise accurately the depth of the misery of the melancholic. They certainly sometimes describe their feelings in a most dramatic manner—one told me lately he felt as if he were in hell, another as if he was looking down the bottomless pit, and a third that his feeling of horror was indescribable and that he would be a thousand times better dead. On the other hand, from its duration some are inclined to think that the misery cannot be so profound as it seems, and that the expression of it must be largely automatic. Most melancholics think that no one ever suffered as they do, and they all say that they will never get well again. A patient who has had numerous attacks himself told me that in spite of the fact that he had recovered so often before, he could not understand how it was possible ever to get well from such depression as he was then suffering.

Emotional Condition—Negative Symptoms.

A state of depressed feeling is the fundamental symptom in melancholia, which must be due to a morbid activity of certain cells. Associated with this there is an inactivity or paresis of function of other cells, for all the other emotions and feelings seem to be inhibited or paralysed. The melancholic patient is unable to enjoy anything or even to take an interest in anything. He ceases to derive any pleasure from his former pursuits and occupations and he shuns the society of his friends. His very love of life itself is lost. Patients are quite conscious of this failure in their interests and affections and often say that their nature has changed and that the world is a totally different place to them now. A patient told me he was "a perfect brute because he did not care a rap what happened to his relations."

Women have frequently told me that they were unnatural or inhuman fiends because they had no love for their husbands or children. A remarkable detail about this paresis of the emotions, which is somewhat unexpected, is the fact that it affects emotions of a painful character quite as definitely as any of the others. A striking illustration of this was the case of a governess who was the oldest member of the family. Her mother had died and she had brought up her youngest brother, being much older than he, and had acted to him as a mother as well as a sister. She became melancholic, and when she was in this state her brother died. She told me she felt absolutely no sorrow on account of his death, which want of affection appeared to her to be so inhuman that she concluded she must be the devil. When melancholic patients suffer bereavement the friends are often afraid to communicate the fact to them lest it should add to their depression. In most cases, owing to the paresis of feeling that exists, it can be done without danger. One of the earliest symptoms of convalescence is a return of interest in what is going on, which may be observed long before the depression has passed away. A female patient will, for example, show some interest in her dress and in her appearance which till then she has not done. The other day I was informed that one of our patients had shown signs of commencing recovery because, although he had with difficulty been made to join in a game of cards, when told it was time to retire he demanded "no trumps all round." This morbid subjective activity of one series of cells in the realm of the emotions, associated with a diminished response of other cells to objective stimuli, is the physical counterpart of the mental phenomena in melancholia, described as "the rise of subject consciousness" and "the failure of object consciousness." The subjective and purely internal feelings of depression become more and more intense and obtrusive and occupy the whole of consciousness to the exclusion of all objective and environmental sensory impressions. This is no doubt partially due to the fact that we give full attention to only one thing at a time, but it is also probable that an actual inhibition is exercised over some functions of the brain.

The Intellect.

We regard the intellectual phenomena met in melancholia

as being always secondary to the emotional. In proof of this we meet cases of pure affective or emotional melancholia in which the intellect is not appreciably injured; cases in which there is a morbid dread or gloom but little or no impairment of the intellect. It is quite certain that the emotional condition is not secondary to delusions, because in a large proportion of cases of melancholia there are no delusions at all to act as the depressing cause. In those cases in which delusions are present and are believed by the patient and his friends to be the cause of the melancholy, it will be found that the depressed emotions existed before the delusions had developed. All the intellectual phenomena about to be described can be observed in a sensitive person who is temporarily overwhelmed with grief or sorrow by a great bereavement. In the first place, all the ideas of a melancholic patient are gloomy ones. I do not here refer to definite delusions, but to his opinions and views about things in general. He looks at everything from the dark side—not a ray of sunshine lights up his mental landscape. He does not meet trouble half way, he goes the whole way and creates it for himself. He is a wet blanket and is objected to by every sensitive person because his conversation, poor as it is, is so depressing. This feature of melancholia is, of course, easily understood. Whenever we experience an emotion nervous energy overflows into the intellectual areas, and there stimulates those ideas which are in harmony with it. Melancholy ideas thus predominate in the mind of the melancholic man, just as the jealous man thinks of his wife's unfaithfulness and the frightened child of ghosts and burglars.

In the next place there is a marked sluggishness in the flow of ideas, commonly described as retarded ideation, and associated with this sluggish flow there is a poverty or diminution in their number. These symptoms make themselves evident in many ways. It is a slow and laborious process to carry on a conversation with a case of melancholia. Replies to questions are only elicited by repeated inquiry, and these answers are monosyllabic or of the most simple and direct character, and the patient himself does not initiate any new subjects of conversation. In a large number of cases the patient is quite mute and never speaks at all. This condition of sluggishness and poverty of the ideas in melancholia is vividly shown up by contrasting it with the flight of ideas found in the converse state of

mania. There the patient talks incessantly, his ideas flow with such speed that his power of speech cannot overtake them, and their number and their range give brilliancy and imagination of a sort to his remarks. Melancholic patients are quite conscious of this impairment of function. They find attending to their work a labour, and they write their business letters with difficulty and in an unsatisfactory manner. I have known a highly educated clergyman take hours to revise a short essay of two pages "On Temperance" written by a child twelve years old. They have also often told me that their thoughts would not come, that their brains would not work, and that they would never be fit for business again.

These intellectual symptoms in melancholia are possibly secondary to the lack of interest that exists and due to the failure to receive the emotional stimulus which is so helpful to thought. On the other hand, there may be a direct inhibition exercised over the ideational functions producing the sluggishness, the poverty, and the restriction in their range which we have described. These intellectual phenomena are all found in a lesser degree in normal melancholy and sorrow.

There are other features of the intellectual state which are important from a diagnostic and differential point of view. In the first place the melancholic patient does not suffer from mental confusion. He realises fully where he is, the identity of those about him and the lapse of time. There are, therefore, no signs of disorientation such as exist in all the delirious types of insanity. Nor are there any signs of mental enfeeblement. His answers, though simple, when he does deign to reply, are coherent and sensible, and he does not make silly, childish and inconsequent remarks, such as occur, for example, in dementia præcox. The patient's memory is not so good as usual, and he sometimes complains that it is poor, but there is no real impairment of memory. Owing to a lack of interest in his surroundings new impressions may not be imprinted on his mind so deeply as in a state of health (anterograde amnesia), and owing to retardation of ideation his recollection of past events may be slow and imperfect (retrograde amnesia). When he recovers, he nevertheless remembers the chief incidents that have taken place during his illness, which distinguishes it from delirious insanity. Attention suffers, like memory, from lack of interest, and this is one reason why most melancholic patients

make poor subjects for treatment by hypnotism. The intellect of the patient suffering from simple melancholia is, however, not seriously affected, and this is shown very definitely by the remarkable insight he possesses into his own condition, which is superior to that shown in any other form of insanity. The patient himself usually consults a doctor, and may enter a mental hospital voluntarily to seek protection from the danger of suicide. These intellectual phenomena which I have already described are seen best in passive melancholia, but there are others of a different character which are seen in greatest perfection in the anxious or active varieties of melancholia.

It has been pointed out that when we suffer from an emotion, nervous energy overflows into the intellectual areas and stimulates those thoughts which are in harmony with it. In melancholia this discharge may find a path to a special train of thought on a certain subject, the result of which is that thoughts on this subject are never absent from the patient's mind. The thoughts may be on any subject of a depressing kind—on his sins and wickedness, on his ruined reputation, on his intemperate habits, on his sexual errors, or on particular incidents which he magnifies in importance and to which he attributes his melancholy. These are not delusions because they have not yet crystallised into the definite shape taken by delusions, nor do they carry the complete conviction that is a feature of delusions. They are the saturated solutions in which delusions may form. These patients tell us that they are troubled by their thoughts, that their wicked thoughts keep running in their minds and give them no peace, and that they cannot get rid of them. I have seen a patient shaking her head rapidly from side to side to get rid of them, and others bumping their heads violently to knock them out. The most vivid description I have had of the process was from a lady, who told me that it reminded her of a squirrel in a cage with a revolving wheel, and that her thoughts revolved in a similar manner round the same subject all day long.

This condition of monotonous and continuous ideation demonstrates that two nervous processes are taking place. That the field of ideation, which was restricted in typical passive melancholia, has here become contracted within much narrower limits. In the next place, within this contracted zone ideation is no longer retarded but excited. In typical

cases of anxious melancholia this limited excitement may become very marked, and such patients may become nearly as talkative as cases of mania. Their talk has not the discursiveness, range, and fancy found in mania, and they harp away on one subject till their audience is bored to death and sick of them. This tendency to monotonous ideation is also present in physiological states. In grief the ideation may be restricted to the bereavement sustained, but on this one subject the ideas may flow with remarkable freedom, while on all others sustained thought is impossible.

Delusions.

At this stage we begin to notice those signs of intellectual disorder which culminate eventually in the development of actual delusions. The subject round which the patient's ideation revolves cannot be discussed by him in a sane way, be it a general question of his morality, honesty, or sobriety, or be it a particular incident connected with these. He repeats himself continually and asks the same question over and over again, not only many times in the same conversation, but day after day for weeks. He completely fails to appreciate the force of any arguments. He cannot get away from his own standpoint or look at the question from any other point of view but his own. Finally, actual delusions are developed—that is to say, the patient holds beliefs which are recognised by all other people to be false, and these beliefs are incorrigible, for he continues to believe in them in spite of a complete demonstration of their error. There is no doubt that the presence of delusions denotes a great increase in the degree of mental dissolution, and therefore the classification of melancholia into simple melancholia and delusional melancholia is a useful and a scientific one.

The whole interesting and important subject of delusions is thrown open to us in an inquiry into delusional melancholia, but I can only refer briefly to this in its special relation to melancholia. The observation of Griesenger may be accepted as correct that the delusions found in melancholia are generally explanatory in character. The patient feels profoundly depressed, there is no obvious or adequate cause for this depression, and he naturally seeks for an explanation satisfactory to himself. He

runs over in his mind the usual causes which produce depression and anxiety. He thinks of his past life in the light of religion, of his conduct, and how this has affected his reputation, of his health and his prospects of life, of the anxieties of family life, of business difficulties and financial worries, and of the "thousand ills that flesh is heir to." Which one of these will form the subject-matter of his delusions will depend upon the special circumstances of the moment and upon his own idiosyncrasies, and which one be selected is a matter of no importance. The man who has immersed himself in business and whose anxieties have been financial will probably develop delusions of ruin and bankruptcy. The mother whose worries have been domestic, and who has devoted herself to her family, will imagine terrible things about them. The religious-minded man or woman will suffer from so-called religious melancholia, and the valetudinarian, or the person suffering from a chronic or incurable disease, will suffer from hypochondriacal melancholia. It is quite a mistake to suppose that religious melancholia is more incurable than other forms, and these distinctive names for different delusional types are of no value except for purposes of description. Many of them are ephemeral, and depend upon the habits and fashions of the age. Thus the belief that one had changed into an animal, usually a wolf, was common in the Middle Ages, and to this the name of lycanthropia was given. Nebuchadnezzar no doubt suffered from a variant of this type, but it is almost unknown now. Demonomania, or the belief that one was turned into a devil, is fast disappearing, owing to the neglect with which the personality of the Devil is treated in our pulpits. The important point to remember is that the delusion is the explanation the patient has adopted for his melancholy condition. The patient, for example, has asked himself, "Why am I depressed? I am as depressed as if I had committed the unpardonable sin and had been forsaken by God. I feel I must have committed the unpardonable sin and been forsaken by God. That is the reason why I am depressed." The relatives of a patient unfortunately adopt this view, that the melancholy is the result of the delusions whatever they may be, although our analysis of the condition has demonstrated the contrary to be the case. They look upon his condition as a mental state rather than as a disease, and they fancy that if the patient will only give up his

delusions, which, being unfounded, they think should not be difficult, he will thereupon immediately recover. They endeavour to remove these delusions and invite the doctor to assist them with his arguments. Now, a delusion not being founded on a basis of reason, as sane beliefs are, or ought to be, but resulting from morbid changes in the brain, it is as absurd to think of removing a delusion by the exercise of the powers of speech as to convert by this means a Babinski reflex into a normal one. If a delusion be apparently removed as the result of argument and persuasion it may be taken as a sign of commencing recovery. The friends can be assured that when the depression, which is really the cause of the delusions, passes away, the delusions will also disappear, and only then.

Hallucinations.

We pass now to the senses and to the question whether hallucinations exist in true melancholia. In the majority of typical cases they undoubtedly do not, but in a few cases hallucinations of hearing apparently exist, but play a very subsidiary part. Even here their existence is doubtful, as it is possible that pseudo-hallucinations are often mistaken for true hallucinations. A true hallucination is one which sounds to the patient exactly like an audible voice coming from a particular direction or place outside of him, which he believes must be heard by other persons as well as himself. A pseudo-hallucination is often described by the patient as a message, communication, or impression conveyed to his mind, possibly in words, but not to be confounded with audible sounds. It is not of a nature to be heard by other people, and he will explain that its seat is internal. I have observed hallucinations in subjects who have been formerly alcoholic, and they may occur as superadded phenomena due to intercurrent toxic conditions or to states of exhaustion. Their presence, however, at all times is a suspicious sign, and if they be numerous, prominent, and a feature of the case, then it is highly probable that we are dealing with dementia præcox, systematised delusional insanity, or a melancholic variety of delirious insanity. In the old classification which included agitated melancholia of the type of delirium tremens under melancholia, no doubt hallucinations both of sight and of hearing were

frequently met. This type is, however, a toxic, acquired, and non-periodic insanity, and is not included under manic-depressive insanity.

Psycho-motor Symptoms—Expressions and Gestures.

The psycho-motor symptoms in melancholia are a compound of the voluntary and the automatic, in which the latter possibly predominate. The expressions, attitudes, and gestures should all be studied and present many interesting phenomena which cannot be entered upon here. It has already been said that the cases divide themselves into two great motor groups—the passive and the active. The groups overlap, and in a typical case of passive melancholia there may be a constant wringing of the hands and the occasional utterance of a groan of despair. Cases of passive melancholia are also subject to panics of fright when they become temporarily very excited, a state to which the name of “raptus melancholicus” has been given. In active melancholia, on the other hand, the excitement may be very great, and such cases at one time, when the term “mania” was synonymous with motor excitement, were called “mania.” The motor excitement in the two conditions is, however, quite different. The movements in melancholia, like the ideas, are monotonous and restricted, and consist of such movements as wringing the hands, uttering cries and phrases, walking up and down the room, or rubbing the scalp or some other part. All these movements are purposive in character as well as rhythmical and repetitive, and these features resemble very closely the analogous nervous state in the intellectual areas. In mania, on the other hand, there is a glorious exuberance of muscular force which overflows in every direction by every variety of movement.

A great insight is obtained into these phenomena in melancholia by a study of Darwin's *Expression of the Emotions*. He traces the muscular movements known as expressions and gestures to the purposive movements of our ancestors under conditions which would produce feelings similar to those which they now express. He traces the expressions, gestures and restlessness of the active group to the movements habitually employed in a defensive struggle or headlong flight from danger. In the passive group he traces the expression and the relaxed attitude to the exhaustion and collapse following on a violent

struggle or flight, in which the weaker animal had only managed to escape with life.

Volition and Conduct.

The most important symptom in melancholia from a sociological point of view is disorder of volition and conduct. In so far as the morbid feeling of gloom or anxiety is concerned, this symptom is a purely medical one which interests the patient himself and his own physician. When, however, the realm of conduct is invaded, then the disease becomes of social importance and the laws of the land take notice of it. It is only when this happens that the term "insanity" can be properly applied to melancholia. It is, further, not till the conduct is disordered to such a degree as to be dangerous to the life of the patient or others that he can be certified to be insane and a suitable case for an asylum. The prevailing symptom of this kind is defect of will-power and a failure to perform those acts and duties which are expected of a sane person in the position of the patient. This result is what might be expected. Our acts are largely determined by our desires and aversions, and if, as in melancholia, the patient has no likes or dislikes, nor any interest in anything, the emotive power is absent. The conduct in melancholia is, therefore, of a negative kind, and is characterised by faults of omission, by a failure to do the things that ought to be done. In the early stages the patient is conscious of the greatest difficulty in getting through the routine duties of the day; he then neglects to perform certain daily tasks. Later he stays indoors and will not go out, and finally he refuses to get out of bed. This failure may be of any degree and varies in details, but in its complete form the patient stays in bed, refuses to put on his clothes or go out to work, and finally even refuses to take any food, and would starve himself to death. This paralysis of the will-power, or aboulia, to a greater or a lesser extent influences every act that the melancholic patient performs. One illustration is, however, sufficient. The sister of a patient of mine lately timed him with a watch putting a letter into a pillar-box, and it took him exactly ten minutes to post it. This was not due to a struggle against a neurasthenic obsession, but simply to an absence of a compelling force or desire.

Associated with this aboulia or defect of will-power there

is an extraordinary condition to which Dr. Clouston has given the name of resistiveness. If any attempt be made to rectify the failures of the patient, such as to dress him or to feed him, he does not remain a passive agent under these attentions, as might be expected, but resists with all his might till he is exhausted. This resistance, however determined it appears, is quite meaningless, because, after having resisted with all his strength having his clothes put on, he will then resist having them taken off. He will resist being taken out for a walk, and then resist being taken in again. The condition is obviously automatic, and the explanation of it may be found in Darwin's hypothesis, that the expressions of melancholia are derived from the defensive acts employed in resisting an enemy.

Extreme restlessness is a feature of melancholia of the active or anxious type. It would appear that so much energy overflows from the emotional to the psycho-motor areas in these cases that the patient feels an irresistible craving for movement. A patient told me he could neither sit, stand, nor lie, but must keep on the move. Another never sits at his meals, but takes them walking up and down his room on a pathway he has worn in the carpet. A third finds it impossible to sit at morning prayers and breakfast only, but later in the day can control herself. A patient who was doing his best to control this symptom told me he suffered agonies in his efforts to suppress this craving for aimless movements. He described them as the fidgets or jumps, and he told me that he felt inclined to bite, scratch, squeal, to make unnatural noises, and to throw things about. Of extreme examples of this loss of self-control Dr. Clouston writes: "The patients rush about, are violent to those about them, wander ceaselessly, walking up and down like tigers in a cage, or roll about on the floor, or wring their hands, or shout, or groan, or moan, or weep loudly, or tear their clothes, or in their cries, attitudes, or motions express strongly their mental pain. In short the muscular expression, of the pervading emotion is strong and uncontrollable by volition." Hughlings Jackson has said that anxiety is "only fright spread out thin"; we may extend this conception each way and say that the restlessness of active melancholia is only the distorted echo of many a desperate struggle that took place in the history of the race.

There exists one symptom of disordered conduct in melancholia, the most serious and important of all, which is not an act of omission but of commission. I refer to suicide. In the absence of all joy in life or desire to live, suffering the tortures of the damned and without any hope of relief, it is not surprising that oblivion is frequently sought in death. The frequency of the attempts to commit suicide does not, however, bear any relation to the frequency of the desire to end life. This is, I believe, present in every case of melancholia at one stage or another during its course, and the only safe rule to follow in the care of melancholic patients is to act on the assumption that it is always present. That suicide is not more often effected is due to the aboulia or defect of will-power to which I have already referred. In addition to attempting to commit suicide, the active or anxious melancholic is guilty of perpetrating other acts that he should not do. He is destructive, destroying books, plants, and clothing; he is irritating to the other patients by many annoying habits; and he is exceedingly troublesome to the nurses by his obstinate and obstructive methods. These apparently selfish, wicked, and even degraded acts in melancholia are somewhat surprising, but if the symptoms of melancholia can be traced to the acts of an animal thinking only of its own safety, resisting an enemy, and regardless of all other considerations, their presence is explicable. So also the occasional homicidal tendencies that are present, though these are to a large extent due to delusions.

Physical Symptoms.

The bodily health suffers greatly in melancholia, and the impression typical cases give is one of general malnutrition and deficient nervous energy. They almost always lose weight during the attack and the most reliable sign of commencing recovery is a gain in weight. The system which is most obviously at fault in melancholia is the alimentary. The patient at an early stage suffers from loss of appetite and constipation. Digestion troubles are usually complained of and the tongue is found to be foul. Digestion is slowly performed owing to a deficiency of pepsin and an impairment of the movements of the stomach and there is a tendency to dilatation. How far all these symptoms are primary and how far secondary is

a matter of doubt, but judging by the effects of natural grief on the appetite and digestion and by Pawlow's experiments they are in all probability at an early stage largely secondary. These alimentary disorders undoubtedly influence the course of the disease, as their rectification by purgation and other appropriate treatment is often followed by immediate improvement. Breathing is shallow in melancholia. The action of the heart is feeble and the pulse is usually slow, but may be rapid. The blood-pressure is usually high, and by some this is regarded as a symptom of primary importance on which the feeling of mental depression chiefly depends. In some cases there is œdema of the feet. The quantity of urine passed is diminished and so is the amount of urea. The temperature is usually found to be subnormal. These symptoms point to a sluggish metabolism and to impaired vitality.

The most important physical symptoms in melancholia are undoubtedly those referring to the nervous system. Most prominent among these is insomnia, which is an almost universal symptom and one of the most distressing. There is both a difficulty in going off to sleep, and a tendency to waken early. A curious phenomenon which is very common is for the patient to assert that he has not slept, while he actually has done so. This must be due to the sleep being of a restless, troubled character, in which the mind has never been absolutely unconscious and at peace.

The muscular system is, of course, involved in the expressions, gestures, and attitudes of melancholia, but in addition to this the motor functions are distinctly impaired. The movements are feeble and they are all slow. Speech is low, monotonous, and slow; the articulation is not crisp, and all other movements are similarly affected. The hand-shake, for example, is flabby and wanting in character and vigour. It has been found by Stoddart that the accommodation even is weakened and that on recovery the patient can read smaller type than during his illness. He has also observed that the larger or trunk muscles tend to be rigid—a condition which is very noticeable in the muscles of the neck. It is thought by him that the defect of will-power and the feelings of harm and opposition in the environment, which lie at the root of melancholia, have their origin in these impairments of motor function. The superficial reflexes are diminished.

Lastly, the sensory phenomena are equally important, and the paræsthesiæ to which melancholic patients are peculiarly subject often form the foundation of their hypochondriacal delusions. Most patients complain of feelings referred to the head, to pain, throbbing, fulness, heaviness, tightness, numbness, formication, or to feelings as if there was something inside the head, or the blood was boiling. Very many complain of feelings about the throat similar to the globus—of tightness, of swelling, of choking, and of a difficulty in swallowing. Others of feelings in the præcordial region and epigastrium, of suffocation, of sinking, and of emptiness. Feelings of numbness and paræsthesiæ may exist in other regions of the body, and one of my patients informs me that he suffers from acute aches and pains all over his body, and that he feels very ill indeed. A very common delusion is the belief that the patient has no inside; another that his throat is closed and that he cannot swallow; and the explanation of these can with great probability be traced to these paræsthesiæ, which are often experienced in natural grief. A secondary delusion to the above is the belief of a patient of mine that his head is swelling in size, as all the food he eats goes there.

In melancholia delusions occasionally exist about the size and shape of the body and the position of the limbs, and it is surmised that there are likewise disorders of the muscular sense.

Conclusion.

The primary and fundamental symptom in melancholia is a feeling of depression or mental pain. The other mental symptoms appear to be secondary to it, and in all probability many of the physical phenomena are also secondary. It is believed that centripetal nervous impressions come from all the organs and tissues of the body, and these arise from the metabolic processes which occur in them during their functional and trophic activities. Although we are unconscious of these individually, yet these impressions in the mass are the basis of our feelings of well-being or of malaise as the case may be, and they form the background of our consciousness—the cœnæsthesia. In melancholia it would appear that accompanying a sluggish and defective metabolism, with diminution in the pro-

duction of nervous energy, there was an organic feeling of ill-being, which was reflected in consciousness as a subjective feeling of misery or mental pain, without any exciting cause in the environment of a mental nature.

III.

(I) *Healthy and Morbid Depression.*

A recognition of the differences between natural and morbid depression, between melancholy and melancholia, is very important. Any difficulty that may arise can only be with cases of simple melancholia, for in delusional melancholia even the layman can discern that the mind must be disordered. The problem, therefore, is, How can we distinguish the symptoms of simple emotional or affective melancholia from those of natural melancholy? In the first place, we may not be able to do so by the symptoms themselves, whether mental or physical; they may all simulate analogous phenomena in health. Maudsley has stated that they "caricature" the symptoms of natural melancholy, and that is usually true, but in the most difficult cases the phenomena are not caricatured but simulated with fidelity.

The first evidence we have rests on the fact that melancholia is a departure from the normal mental condition of the patient himself. From a person of equable mind, or even of bright and cheerful disposition, he is more or less suddenly transformed into a being always in a state of gloom or apprehension. While this may not be complete proof of mental ill-health, it is quite sufficient to arouse grave doubts.

In the next place, normal melancholy is a reaction to some event or cause in the environment, such as produces painful feelings in the normal or average person. Melancholia does not arise in relation to anything in the environment; it is a subjective or internal condition due to a disordered function of the brain. In the majority of cases there is no difficulty on this point, because the patient is found wrapped in gloom, and himself informs you that he cannot tell the reason of it. These two tests are usually sufficient to settle any doubts.

In some cases it happens that there is a cause of a painful kind to which the melancholia is attributed, such as the loss

of a friend or some business difficulty. In most of these cases there is no difficulty either, as the reaction to this alleged cause is out of all proportion to it either in intensity or duration or in both, and has in reality nothing to do with it except indirectly.

In a very few cases there is a real difficulty when the exciting cause is of a profoundly moving nature, as, for example, in the case of the reaction that occurs when by one false step a man's reputation is hopelessly ruined, or when he is suffering from the agonies of a fatal disease. In these cases there may be a doubt, and the right course to follow is to suspend the diagnosis and keep the patient under observation.

In these cases help may be received in the diagnosis by seeking for the secondary and associated phenomena which are so rich in melancholia. There is usually hereditary predisposition to insanity in melancholia, there has often been a previous attack, the health is usually run down, and there is loss of weight ; insomnia, loss of appetite, and constipation are present, as well as motor, sensory, and intellectual symptoms.

A knowledge of these associated secondary phenomena is also useful where malingering is suspected. I have a patient at present who is suspected of pretending to have simple melancholia. If she complained only of feeling depressed it would be difficult to decide the point, but her chief complaint is "of bad thoughts which never leave her, and of her brain, which somehow won't work." The presence of these characteristic secondary symptoms confirms my belief in the existence of a fundamental depression. I cannot, therefore, discharge her on account of the danger of suicide, of which she occasionally hints.

(2) *When Melancholia becomes Insanity.*

The second difficulty that arises is to decide : When is it possible to say of a person who is admitted to be suffering from morbid depression or melancholia that he is now legally insane ? The patient himself will tell you : "I am not insane ; I may be ill and suffering from depression, but I have my senses and I know what I am doing." The patient's friends always scout the idea of insanity. They say : "Doctor, he is as sensible as

you or I ; if he would only cheer up and stop thinking about his business he would be alright." In discussing this important point we must be careful to employ words with very definite meanings. We must have, in the first place, a medical term of an inclusive character applicable to every form of morbid mental state. The term "mental disease" will suit our purpose. Mental diseases, from the legal point of view, are divided into two groups—those in which the law has no special interest, and those in which the law is deeply concerned. The legal term for the latter is "states of lunacy," but as there are objections to the medical use of this term we will refer to these states as "insanity." Now the symptom, the presence of which divides the legal form of mental disease or insanity from the other is disorder of conduct. Medicine deals with disease, and law with behaviour. So long as the symptoms of melancholia do not result in any loss of control over the conduct then the patient is suffering from an ordinary disease, and cannot be reckoned insane or a lunatic. Whenever his conduct is based upon the mental symptoms of his disease, then he is to be regarded as insane or a lunatic. Whenever a person suffering from melancholia begins to act from motives entirely different from those of other people or of himself when well, and fails to conduct himself like other people, then his condition must be looked upon as one of legal insanity.

In the most simple and slight forms of melancholia the patient may struggle heroically against all the tendencies of his disease, and he may outwardly appear to be normal and may perform his duties more or less satisfactorily. So far his melancholia is purely a personal and medical question. Later on he fails to cope with his work, although physically there is no defect, he neglects the most ordinary social duties, and eventually he may cease to speak or even to eat, and would starve himself if permitted. His melancholia is now a social as well as a medical question, involving as it does responsibilities to his family and to society in general. He is insane because his conduct is not that of an ordinary healthy person, but is determined by the symptoms of a disease.

(3) *Certification.*

The third question that arises is to decide the stage at which a person suffering from melancholia may be certified

to be insane, and a proper person for placing under care and treatment in an asylum. At inquests upon those who have committed suicide, the doctors in attendance frequently reply when asked why their patients were not under safe care that it was impossible to certify them. It is therefore very important to know when a patient may be certified as being not only insane, but a proper person for care and unfit to be at large. He may be thus certified whenever his conduct becomes unsafe to himself or to others. Of all the forms of insanity, there is less difficulty in the certification of melancholia than any other, by reason of the danger of the patient taking his own life. The desire to die and to find oblivion is not a rare symptom in melancholia. Nor is it a symptom late to appear, but the very reverse, for the early stage of simple melancholia is the most dangerous period of the disease. Nor do the patients conceal their feelings on the subject, though they may not say in so many words that they are going to take their lives. They constantly say that life is not worth living, that they have no wish to live, and that they will be better in their graves. Knowing the frequency with which the attempt is actually made, no medical man has any right to ignore these indications in melancholia, and he incurs a great responsibility when he says they mean nothing. If in the opinion of the medical attendant there is reason to believe that a suicidal tendency exists, there can be no difficulty whatever in granting a certificate that the patient is a proper person for care and treatment in an asylum if it be necessary to care for him in that way.

If melancholia be a disease so easy of certification at an early stage, it is instructive to inquire why medical men frequently find it so difficult and fail to do so. In the first place this is due to the fact that the symptoms of disordered conduct in melancholia are of a negative and not of an active kind. If a person shouts and uses violent language, if he destroys articles and attacks others, and if he gets into trouble owing to his foolish acts all day long, one has no difficulty in filling up facts indicating insanity in a certificate. On the other hand, if he sits quietly, interferes with no one, and commits no offences, the indications of insanity are not so apparent. The omissions of the melancholic are nevertheless very serious and definite departures from normal conduct. I have, however,

found from experience of students attending my classes that they have the greatest difficulty in recording negative facts in their certificates of insanity.

The other reason is probably the more important. It is, I suspect, believed by some medical men that unless a patient entertains definite delusions he cannot be regarded as insane. We know of course that this is quite wrong, for most cases of melancholia are of the variety known as simple or non-delusional. The symptom of mental disease in these cases is not intellectual but emotional—they suffer from morbid depression. This symptom, moreover, affects the conduct more extensively than any delusion can, and the case therefore fulfils the requirement of disordered conduct needed by the law in all cases of insanity. It would, indeed, be a *reductio ad absurdum* if simple melancholia, the form of insanity in which the conduct is so disordered by unsoundness of mind that the patient's life is in the greatest danger, were not to be regarded as insanity!

Medico-Legal Summary.

Before dealing with the question of suicide, I desire to summarise in tabular form these medico-legal aspects of melancholia and of insanity in general.

Under the general term "mental diseases" we include every form of disease or morbid condition with mental symptoms. It includes the simplest derangement of mental function as well as the wildest disorder of the mind, the slight failure of memory which, like failing powers of vision, is an accompaniment of advancing years, as well as acute delirious insanity.

Mental diseases are divided into two groups. First, those which are not accompanied by any loss of the power of self-control or disorder of conduct, such as, for example, the slight failure of memory which I have mentioned. The diseases of this group are purely medical and personal. In the second group are those diseases in which there is loss of the power of self-control with disorder of conduct, and therefore these conditions are of legal as well as of medical interest. The term "insanity" or "lunacy" may be applied to all these.

This group in its turn is also divided into two: those in

which the conduct is not dangerous to the patient or others, and those in which it is, or there is good reason to believe that it is. The former cannot be certified and sent to an asylum, but the latter may. Every case of melancholia in which the danger of suicide can be reasonably suspected of being present falls under the certifiable group. A person suffering from melancholia who refuses his food is endangering his life and so he also is certifiable; if he be in such a state that he fails to take an interest in his general environment and welfare, and therefore cannot take proper care of himself, he also may be regarded as endangering his life by his conduct.

These views are summarised in the following table :

Mental Disease	$\left\{ \begin{array}{l} \text{A. No loss of self-control and} \\ \text{not involving conduct.} \\ \text{(Personal and purely medical.)} \\ \hline \text{B. Loss of self-control and in-} \\ \text{volving conduct.} \\ \text{(Social and medico-legal.)} \end{array} \right.$	(a) Not dangerous (non-certifiable).
		(b) Dangerous (certifiable).

Suicide.

Many cases of simple melancholia are allowed to drift along, no serious view being taken of their mental condition till at length a definite attempt at suicide is made. If the patient be fortunate enough to escape with life, then it is suddenly realised by all that he is actually insane and in a dangerous state of mind. The majority of these attempts, luckily for all of us, are unsuccessful, because the defect of will-power, which is the prevailing feature in the conduct of the melancholic, impedes him in the performance of this act as much as of any other. He delays till the opportunity passes, or the attempt is half-hearted.

No case should be allowed to run these risks, nor would it if it were fully realised by the medical profession that every case of melancholia is a case of potential suicide. I believe that at one stage or another every case entertains the idea of it. There are stages, no doubt, in which patients, far from desiring to commit suicide, may dread to do so; but with all my experience I would hesitate to take the responsibility of saying that any melancholic was not suicidal.

There are two arguments which are sometimes advanced

against these views. The subject may have been discussed with the patient. He may have admitted that he at one time entertained the idea, but asserts that he has now got over it, and that it was very foolish. He is now prepared in the first place to give the solemn assurance that no danger exists, and in the second place promises faithfully that he will not harm himself. Is the patient's word to be taken, and is he to be trusted? When he makes this statement he is perfectly honest, and believes what he says, but in the course of a few hours, or a day or two, there may be an exacerbation of the disease, or an opportunity may occur. If he now desires to end his misery, and all his organic fear of death has vanished, and there is nothing between him and oblivion but the promise, the promise becomes a poor protection indeed. It is not fair to the patient to subject him to this danger; and to rely upon his word and his word alone at such a time is a very hazardous proceeding.

In the next place it may be said that the patient has had many opportunities of taking his life and has not availed himself of them. It is not generally known that people have fancies and whims as regards the means of committing suicide just as in other matters, and the favoured means may not have presented themselves. Thus a melancholic patient told me he walked along the banks of a canal without any suicidal desire, but when he came to any of the viaducts he had great difficulty in getting across safely. Then it must be remembered that, owing to defect of will-power, the melancholic hesitates over every act, and he may not have been able, owing to this reason, to seize and take advantage of good opportunities. Some years ago a man drowned himself by jumping off a ferry-boat, and on his body there were found sixteen tickets. This man had crossed the ferry safely fifteen times, but still that did not demonstrate that he might be trusted to cross it always, or even once more, with safety.

The physician has usually great difficulty in convincing the friends of melancholic patients of this danger and of getting their consent to have the patient efficiently protected. Till he actually makes an attempt at suicide they do not regard him as insane. The patient naturally objects, and says: "If you get people to follow me about and watch me and treat me like a lunatic, you will turn me into one." Although he has no

delusions he is not only insane, but suffers from a dangerous form of insanity, and sooner or later if you do not guard his life for him he will take it.

Every person who has the charge of a case of melancholia bears the weight of a heavy responsibility on his shoulders, and I am afraid this responsibility is not always realised. If I were asked to concentrate the information contained in these lectures on melancholia into one sentence of practical value I would say, "Guard your cases of melancholia from the danger of suicide."

Neurasthenia.

Many of the suicides we see recorded in the newspapers are said to have been of persons suffering from neurasthenia. No doubt, in some cases, this is a mere euphemism which has been employed to spare the feelings of the patient and of his relatives. In other cases it is to be feared that the diagnosis of melancholia has not been made. This is a mistake of a most serious nature in view of the great difference that exists in the two conditions in their relation to suicide. In melancholia the danger is so great that the treatment of this one symptom colours the whole management of the disease. In neurasthenia and psychasthenia, on the other hand, the danger of suicide is very slight indeed, for, as a general rule, those suffering from them are remarkable for the great care they take of themselves. As the consequences of a mistake of this kind may be serious it is necessary to say something about their differential diagnosis.

The two disorders—neurasthenia and psychasthenia on the one hand and melancholia on the other—are quite distinct from one another. Nor do they tend to run into one another, for the great majority of neurasthenics, even with well-marked obsessions, may be so more or less all their lives, without any tendency to become melancholic or insane. Indeed, there are some who go further, and assert that the presence of neurasthenia affords a degree of protection from insanity. This question was very carefully gone into at the International Congress of 1889, and it was found that only in rare instances was it complicated with delusions of persecution, or with those of anxious melancholia, and then only at an advanced stage of the disease.

A considerable number of patients with melancholia, however,

suffer from neurasthenic symptoms, and this is not surprising considering the fact that most of them have a neuropathic family history. In these cases it is usually found that a very definite cause or series of causes has been in operation. For example, lactational melancholia is often found associated with neurasthenia as a result of the nervous exhaustion produced by frequent and prolonged lactation, loss of sleep, deficiency of nourishment, and overwork and worry in domestic affairs among women of the working classes. The fundamental symptom of depression is present in these cases, and the diagnosis, therefore, of melancholia should not be difficult. It is feared that this failure to diagnose it is therefore due to the fact that this depression is confused with the mental anguish that is associated with obsessions in psychasthenia. It will therefore repay us if we consider the difference between the painful feelings in psychasthenia and in melancholia.

Differential Diagnosis.

The psychasthenic is subject to obsessions of an intermittent character, and for an example we will take misophobia. He, or, as is more frequently the case, she, has the idea or feeling that her hands get contaminated with dirt and disease whenever she touches anything, and as a result of this, although she knows that the idea is absurd, she feels compelled to wash her hands. I have known a patient do so 120 times a day. An obsession of this kind passes through four phases in the patient's mind. There is the first or *introductory phase*, marked by the entrance into consciousness of the idea or feeling. It is an unwelcome and unbidden guest, but the patient cannot escape its intrusion. This is succeeded by the second phase, or *latent period*, during which an internal conflict is going on in the patient's mind. She is struggling against the obsession, and so severe an effort may this be that beads of perspiration may break out on the brow, and she may suffer from palpitation. At this stage the patient is melancholic, in so far that she suffers anguish owing to a sense of utter helplessness. The third phase is marked by *victory for the obsession*, which grows irresistible, for the patient is compelled to wash her hands, and actually does so. The final stage is reached by the *departure of the obsession*, and the

patient then experiences feelings of great relief. She now becomes a fairly normal individual, takes some interest in things, and enjoys some of the pleasures of life, and continues to remain in this condition till the obsession visits her again.

There is no difficulty in most cases in differentiating between the anguish of the obsessed person and the depression of the melancholic. The former is markedly intermittent in character, with long intervals in which there was no depression, *except such depression as a sane person feels* who knows he has a trying disease. It is also secondary in origin and is due to the presence of the obsession. In melancholia, on the other hand, the depression is a continual gloom, and the patient derives no pleasure from life. It is also a primary condition, for which the patient is at a loss to account.

In addition to these essential differences in the origin, duration, and nature of the depressed feelings in these two conditions, they differ in numerous secondary respects. Physical and sensory phenomena are more definite and numerous in neurasthenia, whereas mental phenomena, such as well-marked retarded ideation and lack of interest, are very characteristic features of melancholia.

One word more may be said of aboulia, or defect of will-power, which exists in both diseases. On analysis this will be found to be of a very different nature in the two conditions. In melancholia the patient is apathetic and indolent, and for lack of a strong enough motive, fails to act, but the failure does not distress him much. On the other hand, the neurasthenic patient has every desire to act, yet, in spite of the most exhausting and agonising efforts, he finds he has not the power. In the one case there is lack of desire and in the other want of the executive power to act, and the exhaustion and fatigue of the effort to act causes the neurasthenic the greatest distress. After a patient and careful analysis of the acts and feelings of the patient it is usually not difficult to decide which of these two conditions is present.

The differential diagnosis between neurasthenic and psychasthenic states and simple melancholia is one of the most important that requires to be made on account of the question of supervision—the former states being free from the danger of suicide, whereas in the latter this danger is the most urgent and cardinal symptom. It is quite certain from the records and

the consequences that the diagnosis is very often wrongly made. It is therefore a wise and a safe precaution in every case of suspected neurasthenia to exclude melancholia by a careful analysis of the emotional condition. If there should still remain any doubt as to the exact nature of the case, the safer course to adopt till one has obtained further information is to regard it as one of melancholia, or complicated by melancholia.

Treatment—General Principles.

In treating melancholia certain general principles must be acted on.

In the first place, bear in mind that melancholia is a disease, not a mental state that can be quickly removed by argument or persuasion. Like many other diseases, it runs its course, which is often not a short one. Recovery may take time, but in the end it comes and is complete. It is therefore necessary to have patience.

In the second place, like other diseases, those of the mind must be treated by physical means through the body. It is necessary to make a thorough physical examination, and if any disorder exists in any part of the body it should be carefully attended to. Almost all melancholic patients are in bad health, and therefore it seldom happens that good cannot be done. If there be an exciting cause for the attack, like prolonged lactation or excessive indulgence in alcohol, it is obvious this should be removed.

In the third place, I have been greatly impressed by the fact that good results are got by paying great attention to detail. Melancholia and other forms of insanity are not usually the result of one definite cause, but of a chain or sequence of many causes, which in their sum overwhelm the mental health of the patient. A similar principle should be followed in the cure of insanity, and recovery may be obtained by not relying exclusively upon one form of treatment, but many measures simultaneously. Any one of these details singly may be valueless, but in the mass they have often a definite effect.

In the last place no form of disease is so benefited by the open-air treatment as insanity. Insanity does not tend to occur in those who are in good health—it is, indeed, surprising what the brain will stand if the health be good. It occurs in

those who are run down through the prolonged action of debilitating causes. For such people no form of tonic treatment has yet been devised which is so efficacious as rest in the open air.

The Treatment of Melancholia.

The disorders of the gastro-intestinal tract must receive the first attention, as so much depends on proper alimentation. Indigestion and constipation are usually present, with the absorption of putrefactive substances from the bowel, for the ethereal sulphates can be demonstrated in the urine. The result of these is that the patient suffers from malnutrition, and becomes thin and anæmic, with a muddy complexion. It may be necessary to wash out the stomach. Calomel should be given, and the bowels should be periodically purged. Intestinal antiseptics may also be given, and the lactic acid bacillus treatment has done well in some cases.

If attention be given to the alimentary system improvement often follows immediately, and the first sign of this is a rise in the patient's weight. In a disease which is possibly metabolic, and in which there is almost always disordered nutrition, there can be no more accurate test of improvement than this.

Among the faults of omission which form the symptoms of disordered conduct in melancholia one of the most important is the neglect and refusal of food. This must, of course, be overcome, and in the first place the patient should be coaxed. If coaxing will not do, the nurse must force the patient, and if this be impossible, then the patient must be fed by means of a stomach-tube or nasal tube. Many patients suffering from melancholia gradually starve themselves, and a practical point of great importance is this—that it is not the patients who refuse *all* their food who starve. When this happens those in charge of the patient are so alarmed that artificial feeding is adopted practically at once. I regret to say, however, that I have admitted a patient who has not had food for nearly a fortnight. The patient who is most likely to starve is one who has for a prolonged period taken only a mouthful or two at each meal, but has never absolutely refused. As something has always been taken, it is assumed that enough has been taken to keep body and soul together. Such cases are those most likely to starve, and whenever they begin to refuse food a

daily chart should be kept, and the patient should be weighed weekly. It is perhaps not generally known that it is possible to tell whether a patient be starving or not by the sense of smell. Whenever the carbohydrates in the body are used up, there is the production of acetone, and the sweet distinctive odour of this substance can be smelt in the patient's breath.

The overfeeding of melancholic patients was at one time practised, but it is obvious that if the function of digestion be disordered, extra work should not be thrown on the stomach. Moreover, a patient is not fattened by the amount of food that goes into his stomach, but by the amount that is digested and assimilated by him. Milk is by far the best food, and as there is a tendency to putrefaction in the intestines, nitrogenous food should not be given at first.

The next symptom to receive attention is sleeplessness, and there are very few in the early stages who do not suffer from insomnia. Natural means should of course be tried in the first place to overcome this, such as the open air, moderate exercise, a quiet room, etc. If these fail, the two best hypnotics to use are paraldehyde and potassium bromide.

Paraldehyde is a perfectly safe drug. Two drachms may be regarded as a standard dose in the insomnia of melancholia, and it can be dissolved in 2 oz. of cinnamon water. As it acts as quickly as alcohol does, it should not be given until the patient is in bed. Its action can be assisted and prolonged by the administration of potassium bromide in doses of 30 grains to 2 drachms. In the larger doses it should not be given continuously, as it has a tendency to accumulate in the system. In my own experience veronal, of the newer drugs, while sometimes producing giddiness, unsteadiness of the gait, headache, and sickness, has been the most useful. In some cases of melancholia the blood-pressure is high, and sleep will not be obtained till this symptom has been treated.

The third symptom needing treatment is the tendency to suicide, and this is, of course, done by means of continuous supervision exercised by skilled mental nurses over the actions of the patient. It is not necessary to add anything to what I have already said on this important subject. The nurses are also expected to occupy and interest the patient, and if by their attention and sympathy they win his confidence, they become therapeutic agencies of great value.

Three Special Methods.

There are three other modes of treatment to which I desire to refer briefly. The first is directed to a lowering of the blood-pressure, which has often been found to be abnormally high. A warm bath lowers the blood-pressure, and this is often followed by temporary relief of the symptoms. It also enables the patient to sleep if taken at bedtime. The most convenient way of reducing the blood-pressure is by the administration of tetranitrate of erythrol. Half-grain tablets may be given twice daily, slowly increasing the dose till two or three grains daily are given. It is thought by some that the high blood-pressure has an important bearing on the presence of feelings of depression, for in the converse state of maniacal exaltation the blood-pressure is usually low. This form of treatment sometimes acts well, and is worth trying when other measures have failed. In one case of mine it was very successful where high blood-pressure and depression were found to vary together in a remarkable way.

Another form of treatment also directed to remove the mental pain is the administration of opium. Some believe this feeling of pain is due to a sense of resistance and difficulty in the environment, the result of muscular sensations and impairment of movement. It is more probable that it has an organic basis, and is due to the general malnutrition of the body, the result of which is that the important organs transmit nervous impulses to the centres of a disagreeable kind. These impulses we are not conscious of, but it is believed that the massive effect of the whole forms the background of our consciousness, and produces our feelings of well-being or malaise as the case may be. The rational way of removing mental pain due to such a cause would be to remove the malnutrition by tonic treatment. This is attempted, but in addition it is believed that this feeling of depression can be alleviated by opium. In France it has been largely used for this purpose, and I have found it of marked service, especially in some cases of anxious melancholia. It is best given in the form of tinctura opii, starting with 5 mm. three times a day, and rapidly increasing the dose till definite results are obtained. This form of treatment has many disadvantages, among which are two: It tends to increase the difficulties caused by constipation and sluggish

action of the liver, and it tends to create a habit to which the patient may fall a victim. If administered it should be done without the knowledge of the patient.

Lastly, melancholia tends sometimes to become very chronic, and in these cases, if the state of the nutrition permits it, and there is no organic disease to contra-indicate its use, fairly large doses of thyroid may be given for one week. Three tabloids of 5 gr. each should be given the first day, then 6, 9, 12, 9, 6, 3 daily in succession—an increase of three each day, till a maximum dose of 60 gr. is reached on the fourth day, followed by a decrease of three each day. The patient must be kept strictly confined to bed and the pulse carefully watched. This drug undoubtedly acts as an excitant of the nervous system, but it is believed that its beneficial effects in melancholia are largely due to its influence on the general metabolism. There is a stirring up and a quickening of the trophic activities, and on the basis of this change a fresh start towards recovery may be made.

Prophylaxis.

In conclusion I desire to say one word on prophylaxis. In all other departments of medicine the prevention of disease is considered the highest aim, and we have now reached a stage in psychiatry in which our attention is being given to the prevention of mental disease. I say nothing at the present time on the interesting subject of eugenics, but I would urge on the family physician the necessity of dealing promptly and seriously with the earliest indications of disordered mental function. This is particularly necessary in the cases of those who have suffered from previous attacks, and in the members of families known to them to have a neuropathic history, when they are undergoing any severe strain. For example, a neurotic daughter will nurse an aged mother with morbid conscientiousness and anxiety, losing her natural rest and depriving herself of relaxation and fresh air and exercise. When the shock of the inevitable end falls upon her, or even before then, if she be a victim to influenza she suffers a complete mental breakdown. It is the duty of the family physician to foresee the possibility of this, and to prevent it if that be possible. The early stages of mental disease are functional, and this is more applicable to melancholia than to any other form. Complete rest, a change

of scene, agreeable companionship, and simple attentions to the health may then in a few days or a week or two be the means of averting a threatened attack. The mental as well as the physical health of these individuals and families should be in the mind of the family physician.

The Pathogenesis of a Delusion.⁽¹⁾ By HENRY DEVINE, M.D., B.S.Lond., M.R.C.P., Senior Assistant Medical Officer, West Riding Asylum, Wakefield.

THE case which forms the subject of this paper presents no rare or unusual features, being of quite an ordinary type such as one may meet with every day. Its relative freedom from complexity is the feature which makes it especially suitable for analysis. The delusional formation was strictly localised and showed no tendency to spread into other fields, and but for the one morbid theme the patient could be regarded as normal. It is from the less complex forms of mental disturbance that one may hope to obtain the most insight into the development of abnormal mental processes, and it is for this reason that the case which I am about to bring to your notice has been chosen for consideration.

There has been a tendency in the past to regard classification as the ultimate aim of clinical psychiatry. Provided a suitable label could be attached to a case, its investigation has been regarded as complete. Now while the separation of mental disorders into certain broad groups has very obvious uses, classification is in itself not a very vital point, and it does not take us far in the understanding of our cases. Even if a certain grouping carries with it some degree of prognostic significance, as in the conception of dementia præcox, it does not serve to explain and account for the particular form and content of the symptoms which may be present. Such symptoms are only regarded in a general way as being indicative of a disordered brain, and the hallucinations, delusions, emotional disturbances and the like have no particular meaning except in so far as they serve to differentiate the case from other types of reaction. The case is only viewed from the outside, as it were, and no attempt is made to understand the patient's point of view or elicit the personal significance of

the abnormal ideas and reactions which form the content of the psychosis.

In contrast to this limited point of view, it is being increasingly recognised that a case should not be regarded merely as one of a group but rather as an entity in itself. Though the clinical pictures may bear a resemblance, no two cases of insanity are alike. The contents themselves depend on individual factors, and their significance can only be understood by a close scrutiny of the particular conditions to which the personality has been subjected. The study of the functional psychoses is the study of personality, and the insane are to be regarded as types of mental variation rather than as beings entirely removed from the normal.

Whether one is dealing with the thoughts and actions of the sane or the delusions and impulses of the insane, they both represent the reaction of the individual to experience, however imperfect the form of adaptation may be. Abnormal mental processes cannot be regarded as accidental and insignificant in respect to their content. Like all other psychic operations they have their motives and chains of psychological antecedents, however bizarre and senseless they may appear. A delusion has a mental life-history like any other conception or idea, such an assertion being only in keeping with the principle of determinism, which must hold good in a psychological as in a physical series. (1)

These preliminary observations indicate the purpose of the following brief study, which it is hoped will serve as an illustration, however imperfect, of the principles which have been suggested.

The patient, Miss R—, is a woman æt. 25. The family history reveals a strong hereditary taint of insanity. The father died twenty-one years ago in an asylum, and nine years since her mother had been also insane for a period of a few months. Owing to pecuniary troubles she had become apprehensive and fearful of disaster, and when admitted to the asylum, where she was sent, was in a state of diffuse anxiety and unrest. Her progress towards recovery was rapid, and since her discharge there had been no relapse. The patient is the only surviving child of four. Two had died shortly after birth and the other a little later of "water on the brain."

The mother had been left a widow in somewhat straitened

circumstances at a comparatively early age, but she was energetic and capable and managed to keep a home together for herself and daughter. For a time she had been employed as a cook, but had later taken a well-furnished house and supported herself by letting apartments. Just before her attack of insanity her prosperity had somewhat diminished, this being the immediate cause of her mental breakdown which has already been mentioned. She had become very worried and thought that ruin was inevitable.

Her great interest in life had been the future of her daughter, and by means of considerable self-sacrifice she had been enabled to educate the girl as a schoolmistress. This devotion had been amply repaid. The patient had been intelligent, painstaking, and industrious, and owing to these qualities had obtained a responsible post as a teacher. The two had lived alone together for some years, the daughter being the sole support of her mother.

Until the present attack the patient had shown no abnormal mental symptoms and her career had been praiseworthy but uneventful. Her chief interests were her school work and home ties. She was a favourite with her companions, amiable in character, and possessed of normal religious sentiments. She had appeared to be contented with her position in life and had shown no undue inclination towards gaiety or frivolous pursuits.

About two months previous to admission she had become rather low-spirited. The mother said she had appeared to be depressed because one evening none of her pupils had attended at the evening class. The patient did not say much about it but seemed quite upset at the incident. Her general health became indifferent, her menstrual period began somewhat prematurely, and she complained of a curious empty feeling in the stomach after taking her food, and she thought that nothing she took did her any good. Her depression increased and she said she had some incurable disease, imagining later that it was contagious, and stating that her mother was also becoming infected. After a time she showed some tendency towards suicide, and was then sent to the asylum.

A little scene occurred during the admission of the patient. She became very hysterical, and tried to run away, protesting vehemently that she was not insane, she had been brought to

the wrong place, that it was unfair to allow anyone to come near her, and that she was not in a fit condition to associate with other patients. After a short time, however, she settled down quietly, and soon began to employ herself in sewing and other occupations, though obviously sad and low-spirited.

In general she proved to be intelligent, animated, and quite willing to give information about herself. It was only when the question of her malady was broached that she became depressed and emotional. The account she gave was substantially the same as that obtained from the history. About two months ago she had begun to feel very poorly. Her period had been in some respects unusual, she had strange abdominal sensations, and felt somehow quite different altogether. The doctor had come to see her, but could do her no good. While brooding over her symptoms she remembered that some of her fellow-teachers had been away from duty owing to illness, and she began to think her mother looked strange. The conviction grew upon her that these coincidences must be due to herself, that the complaints had been caught from her, and that she was a source of contagion. She was now quite convinced that this was the case. There was nothing the matter with her mind ; her trouble was entirely physical. She had been a little depressed because she could not go to school, but that was only natural.

This belief was firmly assimilated to the personality. Though circumscribed, it had none of the characters of an obsession ; it was a typical delusion which repelled all counter-suggestion. The patient was hopelessly pessimistic about herself—there was no cure, and she could only regret that no steps were taken to isolate her. She was willing to listen to all the arguments that I could advance in order to convince her that she was wrong, but all to no purpose. The belief was not founded on any logical process of deduction ; she *felt* she had a disease, and could express no other opinion in spite of anything which might be said to the contrary.

For some time after admission the patient was often noticed to walk about with her mouth covered, evidently fearful of spreading infection. If any of the patients or staff were unwell she would become distressed and worried, regarding herself as the origin of their illness. These peculiarities soon vanished, however, and her conduct became to all intents and

purposes normal. She entered with interest into the life of the ward, was obliging and pleasant, and seldom referred to her delusion unless questioned on this point. She said it was useless to talk about it or attempt to hold herself aloof from the others, because no one believed her if she said there was anything the matter. Her subsequent mental progress will be mentioned later.

Physically there was nothing special to note. There was no evidence of any physical malady. On admission she was somewhat poorly nourished, but gradually increased in weight. This was no source of comfort to her, however, and she attributed her improved condition to "unnatural fat" rather than to a normal and healthy increase of weight.

These are, then, the salient features of the case. One must now study the origin of the delusional idea which constitutes its most prominent feature.

In describing the evolution of a hypochondriacal idea it is usual to regard some change in organic sensation as being primarily instrumental in its production. An alteration in the vague mass of sensational experience which forms the background of consciousness, and which contributes so largely to the notion of personality, may no doubt become the basis of delusional formation. A vague change of sensation, which is felt but not understood, may become allegorised and interpreted from a delusional standpoint. Thus, in the present case one may say that the indefinite malaise, the feeling of "being different," played a part in the formation of the delusion. At the same time such an explanation is incomplete since it does not account for the particular form and content of the morbid idea, nor does it connect it with the antecedent state of the patient's mind. A delusion bears a more intimate relation to the personality than a mere change of bodily feeling, as will be demonstrated in the instance in question.

Among modern psychiatrists, Freud has probably been the most instrumental in throwing light upon the genesis of delusions, obsessions, and neurotic symptoms generally. It is obviously impossible to even summarise his views in this paper. Reference should be made to his original works or to some of the various papers which have been written to explain his principles (2), (3), (4). It is necessary, however, to mention briefly his views on the origin of neurotic symptoms, as they

would seem to have some bearing on the case under discussion. His main thesis is that morbid mental phenomena arise primarily out of certain states of mental conflict. Such conflicts are produced by the existence of some complex,⁽²⁾ conative trend or experience which is out of harmony with the dominant trends and aspirations of the personality. If the individual is unable to co-ordinate the painful thought with the rest of the personality, there is a tendency to avoid the conflict which it arouses in the mind by suppressing it out of consciousness altogether, by trying to forget its existence. This is effected by various forms of compromise or evasion, which may in some cases assume pathological characters, and take the form of delusions, impulses, or obsessions. The main point to be noted here is that these various morbid symptoms are the superficial expression of some deeper complex which they serve to conceal and suppress from consciousness owing to its painful nature.

In order to trace the connection between the manifest symptom and the complex from which it is derived, some form of *psycho-analysis* must be undertaken. Freud's technique for such an investigation is very complicated and laborious, but considerable assistance may be obtained by the use of association experiments, which have been brought into prominence in this connection by Jung (5), (6), (7). A number of words are called out by the investigator, and the patient is required to give the first word that comes into his mind. The reaction-time of the response is estimated by means of a stop-watch, and when the list of words has been completed the experiment is repeated and the responses again noted. The reaction has been found to vary considerably from the normal when the stimulus-word aroused some complex into activity, the emotion produced causing a disturbance of consciousness analogous to that observed in conditions of experimental distraction. The aroused effect induces a state of internal distraction, characterised by lengthened reaction time, alterations in the character of the response, and failure to reply with the same word on repetition of the experiment.

With this brief digression we may now return to the case of Miss R—. Acting on the assumption that the above principles are correct, and assuming that the delusion which the patient expressed was derived from some more or less concealed com-

plex, I employed one hundred association test-words in order to discover if the nature of this complex could be experimentally determined. The following list of words is a selection from those employed, with the results obtained :

	Stimulus.	Reaction.	Time, secs.	Repetition.
1	Head . . .	Feet . . .	1	—
2	Green . . .	Red . . .	.6	—
3	Angel . . .	Heaven . . .	6	—
4	Long . . .	Short . . .	1'2	—
5	Plough . . .	Field . . .	1'2	—
6	Friendly . . .	Enemy . . .	8	Unfriendly
7	Table . . .	Chair . . .	2	—
8	Dancing . . .	Music . . .	1'4	—
9	Bread . . .	Eat . . .	1'2	—
10	Wood . . .	Iron . . .	5	Trees
11	Lamp . . .	Dark . . .	1'2	—
12	Grey . . .	Hair . . .	1	—
13	Salt . . .	Food . . .	1'2	—
14	Sympathy . . .	Kindness . . .	6'4	Pity
15	New . . .	Old . . .	1	—
16	Play . . .	Games . . .	.8	—
17	Dirty . . .	Clean . . .	5	—
18	Handle . . .	Door . . .	1	—
19	Despise . . .	Disgrace . . .	10	O
20	Wrong . . .	Right . . .	.8	—
21	Book . . .	Read . . .	1	—
22	People . . .	Crowd . . .	5	Friends
23	Stupid . . .	Silly . . .	1	—
24	Tree . . .	Wood . . .	4'4	—
25	Ink . . .	Black . . .	.8	—
26	Proud . . .	Pride . . .	6'2	Foolish
27	White . . .	Black . . .	1	—
28	Bad . . .	Good . . .	1'2	—
29	Low . . .	High . . .	1'2	—
30	Wall . . .	Enclosed . . .	8	Stone
31	Goat . . .	Sheep . . .	1'2	—
32	Flower . . .	Head . . .	1	—
33	To meet . . .	Appointment . . .	6	Talk
34	Big . . .	Little . . .	1'2	—
35	Hit . . .	Strike . . .	1'4	—
36	Cow . . .	Horse . . .	1'2	—
37	To arrange . . .	Neatness . . .	5	Meet
38	Coloured . . .	Dress . . .	1'2	—
39	Worry . . .	Care . . .	1	—
40	Happiness . . .	O . . .	—	Unhappiness
41	To tell . . .	Story . . .	4'8	—
42	Tight . . .	Loose . . .	1	—
43	Engage . . .	Marry . . .	4'6	—
44	Dog . . .	Cat . . .	2	—
45	Month . . .	Day . . .	1	—
46	Fire . . .	Heat . . .	.8	—
47	Kiss . . .	Love . . .	5'4	—
48	To smell . . .	Nose . . .	1'4	—
49	To sing . . .	Music . . .	1	—
50	To talk . . .	Talkative . . .	6	To speak

In the above list it is to be noted that many of the reaction-times are considerably above the average, and that several false reproductions occur. Such phenomena are to be regarded as "complex" signs. They indicate that the stimulus-word has aroused into activity some emotion, producing a temporary disturbance in the mind of the patient. We may proceed to examine each of these reactions in order to elicit their significance.

(3) *Angel—heaven*.—The lengthened reaction in this instance was due to the existence of religious sentiments, which had since her illness acquired a painful significance. With some reluctance the patient confessed that she felt unable to take part in religious observances. She did not consider herself worthy to do so. This statement was confirmed by her conduct. She often displayed considerable reluctance to attend the weekly service, offering trivial excuses for wishing to stay away. That this was not entirely due to her fear of spreading infection was evident from the fact that she would go without protest to the entertainments which were provided for the patients.

(6) *Friendly—enemy*,³ (14) *sympathy—kindness*, (22) *people—crowd*.—All these words showed a lengthened reaction-time and false reproduction. They may be taken together as they are associated with the same complex, *viz.*, the relation of the patient towards her friends. Thoughts about her friends produced a state of depression. She felt herself unworthy of their friendship, undeserving of sympathy. It had been noticed also that she would not write to her former companions; a letter would provoke tears and a mood of reticence and inaccessibility, sometimes lasting the whole day, and after a visit an emotional relapse was usual.

(10) *Wood—iron*, (24) *tree—wood*.—In both these words a lengthened reaction is to be noted, and in the former a false reproduction. The words arouse associations in the mind of the patient connected with the wood which surrounded her school. Such ideas were obviously of painful significance, since her career, which was now to some extent ruined, was closely bound up with the institution. She would not express any further ideas aroused by the word, and it probably touched a deeper complex associated with the incident related below.

(17) *Dirty—clean*, (19) *despise—disgrace*, (26) *proud—pride*.—These reactions all display manifest complex-signs. They have a moral significance indicating some reason for lost self-esteem and feelings of moral unworthiness.

(40) *Happiness*.—This word failed to evoke a reaction. The patient said she could think of nothing to say. To some extent one would expect some complex-signs in this instance when a patient was isolated from her home and shut up in an asylum. Such a profound reaction, however, implies the existence of feelings of still deeper significance. This is actually the case. The word arouses associations the content of which has nothing to do with her position in the institution. A little investigation reveals again the existence of ideas of personal unworthiness. She feels she is undeserving of happiness; if she permits herself any enjoyment she excuses herself by saying that she must be getting "hardened," she has no right to feel happy, etc.

(41) *Tell—story*.—The lengthened reaction is possibly an instance of *perseveration*. This means that the emotion aroused by the previous word is still operative in influencing the subsequent stimulus. The reaction is also probably constellated by the conflicts in her mind resulting from conversations with myself in which she displays evasions and various forms of defence against certain concealed ideas.

(30) *Wall—enclosed*.—This curious reaction, with false reproduction and lengthened reaction-time, is determined by painful thoughts associated with being in an asylum. It will be seen later that the whole question of an asylum had a special significance for the patient.

Leaving for the moment the remaining reactions, the above may be briefly reviewed. One fact stands out quite clearly. The emotions and ideas which have a painful significance for the patient are not those which one would expect to find in an individual who actually was, or believed himself to be, suffering from some infectious disease. Underlying the delusion which the patient expressed is a complex giving rise to feelings of shame, loss of self-esteem and the like. The ideas accompanying these emotions are reflected in her conduct towards her friends and her attitude in regard to religious observances. This self-accusatory bearing, these ideas of personal unworthiness and apparently incongruous emotional reactions point to

the existence of some moral trauma, some actual experience of a painful nature which has preceded the onset of a psychosis. This suspicion is confirmed experimentally by the remaining reactions, which may now be considered.

(33) *Meet—appointment (talk)*, (37) *arrange—neatness (meet)*, (50) *talk—talkative (speak)*.—All these quite ordinary words provoked complex-signs as has been seen. The remaining two words—(43) *engagement—marry*, (47) *kiss—love*—are apt to produce emotional reactions in normal people and in themselves might be disregarded. Taken in conjunction with the above, however, they will be found to have a special significance.

When the patient is questioned as to the ideas aroused in her mind by the last five words she at once becomes reticent and evasive. She says no ideas seem to come at all ; her mind is quite a blank, or nothing worth mentioning occurs to her. Such responses are indicative of some complex of ideas which the patient wishes to conceal. It is a method of preventing the intrusion of some painful thought into consciousness. Though willing enough to converse on general topics, directly one approaches the complex associated with the above words the patient becomes inaccessible, her replies only occur after some minutes, or she breaks down into tears and will say nothing at all. All this means that the incident, finally elicited with considerable difficulty from the patient, existed in her mind in a state of repression. The resistance she offers is due to the fact that she does not want to think about it at all : it is too painful, it is a secret which she wishes to hide. However, it was possible to break down the resistance sufficiently to elicit the following facts :

For some time the patient had been on terms of friendship with a Mr. X—. The acquaintance had lately developed into some degree of intimacy though the couple were not actually engaged. On one particular occasion, while in the company of her friend, the patient had behaved with less reticence than usual and allowed herself a greater display of feeling than was habitual. Though she had not behaved in a manner to which exception could really be taken, the incident assumed abnormal proportions in her mind. She considered that she had not acted with the degree of modesty which, according to her own standard of conduct, was necessary, and she became filled with feelings of shame and self-reproach.

She thought she had been very wicked in allowing herself to express her emotions so freely. In teaching the children she felt that she was not really fit to be a guide to those who looked up to her as a pattern of rectitude and morality. She entertained similar notions in regard to her friends and felt ashamed to meet them.

Eventually this conflict disturbed her mind to such a degree that her conduct became seriously disturbed and she found it impossible to concentrate her attention on her daily work. After a time she became preoccupied by the feelings of malaise which have already been described and she felt so poorly that it became impossible for her to continue teaching. The obsession that she was seriously ill obtained increasing hold of her, and after a time she took to her bed.

One day while brooding over her troubles she remembered a story which had been related to her by a nurse. It was about a young girl who had left home and lived an irregular life in a neighbouring city. After a time she had returned home in poverty and distress, suffering from a disease which had been contracted from her mode of living. At the time (some two years ago) this incident had made no particular impression on the patient, but now it kept coming into her mind. The conviction grew upon her that her own obscure malady must infect others, as this girl's disease was said to have done, and she soon found evidence of this in the appearance of her mother as has already been related.

Now to a certain extent this confession explains the origin of the patient's delusion. The psychosis had arisen out of a state of mental conflict. An experience had occurred which had attained traumatic significance, and had induced a state of anxiety and unrest. The memory of this experience, antagonistic to all her preformed tendencies, had become a constant menace to her peace of mind, and had obtruded itself into consciousness however strenuously she had tried to direct her attention to ordinary pursuits. Unable to assimilate the painful thoughts which had become "over-weighted" in her mind, the patient began to turn away from the actual cause of her depression and commenced to ascribe it to physical disturbances. This process is technically known as *transference*, and is of considerable significance in the genesis of obsessions and delusional states. In this particular mechanism the painful

affect becomes divorced from the ideas with which it is originally associated, and attaches itself to other irrelevant ideas which serve to divert the mind from the original incompatible experience. This is quite comprehensible. In ordinary mental life psychical magnitudes are often repressed by diverting attention to something else.

In the next stage of the psychosis another common mechanism becomes apparent. The prevailing mood brought into consciousness associations in harmony with it and the patient became obsessed by a story she had heard some years before. Eventually a process of unconscious *identification* took place, in which she developed the idea that her physical condition, though not the same, was analogous to that of the unfortunate girl she had heard about. The delusion, then, is the symbolic expression of underlying feelings of shame and self-reproach; as she had at first regarded herself as morally unfit to associate with others, so later she looked upon herself as a source of contagion and only fit to be isolated from the rest of humanity.

The idea of contagion which the patient had elaborated is not uncommon in a somewhat different form. Psychasthenics sometimes develop a compulsive neurosis, in which they display a continuous tendency to wash the hands, this impulse being based on the obsession that they are soiled or contaminated. Freud has shown that this obsession can usually be traced to some moral trauma, *e.g.*, masturbation. The obsession is thus the symbol of actual moral impurity. (8) In this connection it is of some interest to note that a similar idea is expressed in traditional writings. As an illustration one need only call to mind the Biblical significance attached to leprosy, which is frequently used as the symbol of sin and moral uncleanness.

Having reached this stage of the analysis one obvious criticism presents itself, *viz.*, the inadequacy of the alleged conditions to produce a state of mental conflict. A conflict arises when two wishes or conative trends are mutually antagonistic. In the present case the perfectly natural sexual impulse was opposed by conventional views on sex relations. Since, however, the patient's behaviour (sex-impulse expression) had not really been reprehensible at all, even judged by rigid standards, one could only suppose that the patient was possessed of a pathological degree of primness and viewed her own

conduct from an abnormally rigid standpoint. Conversation with the patient did not serve to strengthen this impression, because while she displayed a becoming modesty and reticence, she was neither ignorant nor stupidly prudish about sex matters. Seeing, then, that she accused herself of wickedness on such inadequate grounds, I became convinced that her attitude must be due to the fact that she was suppressing some deeper complex.

It would take too long to detail the steps by which I was enabled to get behind these defensive ideas of unworthiness and discover what complex it was concealing. Suffice it to say that after a time the patient revealed the important fact that for many years *she had definitely made up her mind to exclude all thoughts of marriage on the ground that her father had died in an asylum and that her mother had been insane at one period of her life.* She felt that in these circumstances marriage would be unjustifiable.

Here, then, are all the conditions necessary for a severe intra-psychic conflict. Two entirely antagonistic wishes are present: on the one hand we have the natural sex instincts and desire for marriage, and on the other what might be called her conscience, consisting of motives which render marriage repugnant.

The solution of such a conflict may be attained in various different ways. The condition cannot persist indefinitely. Some form of adjustment must occur, the particular reaction depending on the type of mental organisation. Stronger individuals will react energetically, and solve the conflict by *subliming* the sexual impulses into other channels—ambition, self-sacrifice, devotion to others, etc.—maintaining clearly before the mind the resolve to remain single. Weaker personalities, especially those inheriting an unstable mental constitution, will tend to solve the conflict by taking refuge in evasions, which may be so far removed from reality as to constitute a psychosis.

Let us trace the sequence of events in the case of Miss R—. The conflict began when her affections became fixed on a particular individual. For a time she evaded the real issue, avoiding a definite engagement and attempting to regard the acquaintanceship as one of ordinary friendship. Feeling, however, unhappy about the matter (conflict), she at length,

with commendable courage, informed her friend of the facts in regard to her family history, stating that she felt it was wrong to continue their relationship. Mr. X— treated the matter lightly, and said that what the patient had told him made no difference in his feelings towards her, and begged her not to break their friendship. Blinded for the moment by her affections, Miss R— decided that perhaps she was over-sensitive about her family history, and consented to remain on the same terms as before.

This decision was of momentous import, and from it the whole psychosis can be traced.

Finding her ideals had become impossible of realisation, the patient had *suppressed* the complex, wish, or determination to remain single, and attempted to act as if it were non-existent. Now, when a complex is suppressed in this way, it ceases to exert a conscious influence and cannot find normal expression. It still continues, however, to exert unconscious influence, and will manifest its existence in some indirect and distorted fashion. This is seen quite clearly from subsequent events.

Shortly after the patient had made her decision, the incident which she had at first related took place. It produced, as will be remembered, a condition of severe mental conflict. This could only be due to the fact that she was acting in opposition to the complex which she had striven to banish from her mind. Just the same feelings of unrest and depression tormented her as when the original determination was clearly before her mind.

Having lost sight of the cause of her depression the patient proceeds to invent reasons to account for it. She declares that she has been wicked, immoral, and is unfit to associate not only with Mr. X—, but also with the rest of her acquaintances. It will be seen at once that this is again a process of *transference*. The painful *affect* really associated with the suppressed complex has now become attached to another idea, which is delusional in character. The further development of the psychosis in which this idea became again concealed by the delusion of physical contagion has already been traced.

We are now in a position to summarise the analysis and discover the significance of the psychosis.

The delusion itself was merely a symbol. When traced

back it clearly represents the deeper delusion of moral unworthiness, and this in its turn conceals and symbolises her original belief that she was unfit for marriage on the grounds of heredity.

The psychosis is a *compromise* between two antagonistic tendencies of the personality. Face to face with real conditions, the patient's life had become unbearable. Her instinctive feelings were in constant conflict with her highest ideals and neither would obtain adequate gratification. Failing to co-ordinate the two opposing impulses in contact with reality, and unable to solve the conflict, she takes refuge in a psychosis, in the erection of imaginary conditions. Unable to attain her ideas on rational grounds, she unconsciously attains them by elaborating a delusion which makes the question of marriage impossible. The psychosis had solved the conflict by indirectly gratifying the one wish (desire to remain single), and rendering the other (desire for marriage) inconceivable. The patient frequently expressed this by saying that her affections were now entirely changed; she had no desire to see her friend again, as her condition made the whole affair quite impossible.

The patient might have attained her aspirations in a more rational manner. Under precisely the same conditions another individual might deliberately withdraw herself from the conflict by taking a vow of celibacy and entering a convent. She thus solves the conflict by making the question of marriage impossible. This is a normal evasion. Miss R— attained much the same position, but she did so unconsciously. She had suppressed her wish, it had ceased to be a conscious directing factor in her life, and could only appear under a symbolic guise and obtain distorted and irrational expression.

The reason for the patient's pessimism is now apparent. She had no hope of cure and apparently no desire for such. Her delusion was a defence against reality. As long as she hugged it to herself she was effectually protected against actual conditions, and the conflict to which she had failed to adapt herself. She was forced to fall back on imaginary conditions because the facts of life had proved too much for her. The adaptation to reality (*fonction du réel*) (9), is the highest and most difficult psychic operation, and having once evaded real issues there is a constant resistance against facing them again. As one attempted to break down the succession of defences

which protected her against reality, this unconscious resistance stood always in the way. Sometimes, especially as the patient was beginning to regain her sense of proportion, it seemed as if there was a dawning consciousness of this reluctance to face actual issues. At times, in conversation with her, I observed an unwonted irritability, and she would say, "You seem to think I like being here, I don't want to go home," though I had suggested nothing of the sort. This vigorous and unnecessary denial seemed to indicate that her remark was not altogether far from the truth.

The psychosis is thus a *wish-fulfilment*. This hypochondriacal idea has been traced back to one of the most potent directing forces of the patient's life. The belief that she was unfit for marriage had become so strong as to make her instinctive tendencies impossible of realisation without producing a condition of painful conflict. When her affections became too insistent to be ignored she attempted to give them expression by banishing the opposing complex from consciousness. This suppressed complex thus obtained indirect and distorted expression, which enabled her to solve the conflict in a manner that her true motives had entirely failed to do.

Now, this analysis is not of merely academic interest. It is also a method of treatment. I approach this subject with diffidence, knowing full well how many patients recover under what are termed "favourable hygienic conditions." It does seem, however, that apart from external assistance her delusion would tend to become chronic, seeing how far the patient had lost sight of her original motives for wishing to remain single, and that the perverted expression of these motives was in essence a defence against reality.

However this may be, it was gratifying to find that as the mechanism became clear to the investigator, so it became possible to lead the patient back to reality, and bring her once more face to face with the actual issues of her life.

The analysis is a process of re-education. By breaking down the succession of defensive delusions and discovering what lay behind them, the patient was enabled to understand why she had developed such ideas, and also see how foolish and irrational they really were. Her recovery was not merely a verbal statement that she had lost her delusions, but it was also accompanied by a readiness to converse upon those subjects

which had formerly caused her so much pain. Before her discharge her general reaction had quite changed. She was able to take part in religious observances, showed no moments of depression, and conversed frankly with such friends as came to visit her.

This is the only rational form of psycho-therapy. Crude suggestion either in the waking or hypnotic condition cannot be permanent in its results. It is only by retracing the steps by which the patient has evaded reality, and helping her to understand her own mind, that satisfactory results can be obtained.

The future of the patient is not without hope. She has at any rate acquired a clear understanding of the two main issues of her life, and has been made to realise how it is possible to co-ordinate two apparently antagonistic impulses. By subliming her natural instincts, which cannot find full expression; into devotion to a mother dependent upon her and the care of the children entrusted to her charge, she may succeed in leading a useful and creditable career.

We thus return to our original contention, that insanity is a matter of personality. It is dependent on purely individual factors, wishes, aspirations, and secret conflicts. In the case which has been analysed we see not merely one variety of melancholia, but a personality, the victim of an unstable ancestry and her own ideals.

(1) Paper read at the Northern and Midland Divisional Meeting at Nottingham, April 27th, 1911.—(2) A complex is a system of ideas possessing a certain emotional tone and tendency to action in a definite direction.—(3) This reaction is also associated with a particular friendship noted later in the analysis of the remaining reactions.

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Witchcraft, Demoniactal Possession, and Insanity.⁽¹⁾

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THE study of history, too often confined to the acquisition of bare records of facts and the mere recapitulation of actions, has more and more tended to widen its scope and to include in its purview the analysis of motives as an integral factor. It is true that the bald statement of events has an interest, and for some an overwhelming interest, whereto they confine themselves either by reason of intellectual inertia, or because compelled to restrict their wandering thoughts by reason of the powerful voice of authority; for others more intellectually alive or not subject to the same restrictions the conclusions do not suffice—the why and the wherefore must, if possible, be deduced. The keenly deductive type has been admirably delineated by Conan Doyle, and “Sherlock Holmes” may well stand as an example of those minds which urge their possessors inevitably to progress, so far as is humanly possible, to the unravelling of ultimate causes.

It is often the case that in what are usually considered the by-paths of history are to be found the reasons for events which have bulked largely in the public view; and as time progresses those apparently unessential details, which have been passed over as of little account, are proved to be of inestimable value in the proper understanding of events and actions which otherwise remain inexplicable. When we realise, for example, how greatly physical disabilities and diseases influence the mental outlook, we can have a better understanding of why Calvin, tortured with stone, with phthisis, and with other pathological conditions,⁽¹⁾ should promulgate a system of Church government “which allowed of no licence in faith any more than in conduct,” and, consequently, why it can be said that his followers and those of Luther “showed themselves more zealous persecutors of witchcraft than the Romanists”⁽²⁾—for Luther, too, the subject of hallucinations, was “inclined to believe in the Devil’s power of assisting wizards and witches in their evil designs,” as Carus informs us⁽³⁾; why James I, that pedantic driveller whom Sully described as the “wisest fool in Christendom”—

a description endorsed by Henry of Navarre—should, influenced by sheer persecutory ideas and imbecilic credulity, have been the head and front of offending in regard to witch-prosecution in the early part of the sixteenth century ; and finally, what were the motives—political, theological, or merely of jealousy—which brought about that atrocious crime which lies, an ugly blot on English history, the burning of Joan of Arc ostensibly as a witch and sorceress. These are but a few instances of where the study of witchcraft may lead and must serve as examples of the comprehensive grasp which would be necessary adequately to deal with a subject which may at first sight appear to be merely of academic interest, but which will, on closer inspection, be seen to have its roots deep down in ancestral beliefs and its branches intertwined with those mystical propensities from which no sentient being is exempt.

Primitive animistic conceptions appear to have changed their form with the passage of time, but the change is more apparent than real ; and when the grosser superstitions, such as belief in the existence of witches and wizards and in demoniacal possession, are under consideration, it is easy to trace in them the surviving influence of ideas which later ages, arrogating to themselves the title of civilised, designate somewhat pityingly by such terms as “fetichism,” “demonolatry” and “ophiolatry.” We have changed all that, and in a more highly cultured age have replaced the crude ignorances of our forbears by such highly scientific subjects as palmistry, clairvoyance, spiritualism, Christian Science, or by the worship of that great power—who shall be nameless—who purges us of all human ills by means of his magic pilules ! Truly, as Dr. Hutchinson remarked in the year 1720 in his work on witchcraft,(4) “superstition is never far off.” He was speaking of the “fantastick doctrines that support the vulgar opinions of witchcraft,” but it is to be doubted if he would feel greatly inclined to modify the phrase were he writing of present times.

Primitive religion, which is common to mankind, and which was, as Mr. Clodd says,(5) “before all theologies, which are but concrete and partial aspects of it,” was permeated, nay, was even based upon a belief in evil spirits, who entered into living beings, and, having effected safe lodgment, wreaked their maleficent purposes through the intermediation of their hapless bodies. That belief, embodied in the kaleidoscopic theologies

which have dominated mankind, has maintained its predominance whilst ethical codes have waxed and waned, and whilst vast civilisations have grown to the culmination of their power and passed thence into nothingness—

“Like snow upon the desert’s dusty face.
Lighting their little hour or two—are gone.”

“*Omne ignotum pro magnifico*” was preceded in every case by “*omne ignotum pro malefico*,” and the fear of the demons who inhabited the circumambient air has exercised a potent influence on human thought, and through it on human action. “Devil worship,” says Carus, “naturally precedes the worship of a benign and morally good Deity”; and again: “There seems to be no exception to the rule that fear is always the first incentive to religious worship,”(6) and fear seems to be the one emotional characteristic which, from the times of the primitive cultures, has been an integral part of all religious systems. “No religion,” says Tylor, “lies in utter isolation from the rest, and the thoughts and principles of modern Christianity are attached to intellectual clues which run back through far pre-Christian ages to the very origin of human civilisation, perhaps even of human existence.”(7) The belief in the powers of evil has only been modified in the passage of time, and it has accommodated itself to the changed conditions under which races have come to live; intrinsically it has remained unchanged, and whether we are contemplating ancient Babylon or modern Europe we shall find that the aphorism of the British Solomon holds true: “Where the Divell findes the greatest ignorance and barbaritie, there assailes hee grosseliest.”(8) (It may be stated that he is adducing this as the reason “wherefore there was moe witches of womenkinde nor men”—but then he wrote some three hundred years ago!) And ignorance is a hardy plant that has its roots firm-fixed in many minds irrespective of period or race. “Few people,” says Frazer,(9) “seem to have suffered more from the persistent assaults of demons than the ancient Babylonians, and the demons that preyed on them were of a particularly cruel and malignant sort, devouring the flesh and sucking the blood of their victims and not sparing the gods themselves . . . all the fierce emotions that rend the mind—love, hate, jealousy, and madness—were equally the work of these invisible tormentors.” Among the early Greeks, although such beliefs hardly attained

such inimical power, yet were they, too, obsessed with almost similar ideas : " The earliest of the Greek philosophers, Thales, held that the world is full of gods or spirits " (seventh century B.C); while Porphyry, a sage of the neo-Platonist school, " declared that demons appeared in the likeness of animals, that every house and everybody was full of them." Coming down to later times, we find no diminution in the vitality of such ideas, and from the thirteenth century onward they blossomed out with an exuberance which does infinite credit to the parent stock of superstition. " It is less surprising," says Frazer, " to meet with the same venerable doctrine, the same world-wide superstition in the mouth of a mediæval abbot ; for we know that a belief in devils has the authority of the founder of Christianity, and is sanctioned by the teaching of the Church. No Esquimaux on the frozen shores of Labrador, no Indian in the sweltering forests of Guiana, no cowering Hindoo in the jungles of Bengal, could well have a more constant and abiding sense of the presence of malignant demons everywhere about him than had Abbot Richalm, who ruled over the Cistercian monastery of Schönthal in the first half of the thirteenth century. In the curious work, to which he gave the name of *Revelations*, he set forth how he was daily and hourly infested by devils, whom, though he could not see, he heard, and to whom he imputed all the ailments of his flesh and all the frailties of his spirit. If he felt squeamish, he was sure that the feeling was wrought in him by demoniacal agency. If puckers appeared on his nose, if his lower lip drooped, the devils had again to answer for it : a cough, a cold in the head, a hawking and spitting, could have none but a supernatural origin. . . . If the abbot tossed on his sleepless couch . . . it was not the fleas and so forth that kept him awake, oh no. ' Vermin,' said he sagely, ' do not really bite ; they seem to bite indeed, but it is all the work of devils.' Especially dangerous were the demons of intoxication. These subtle fiends commonly lodged at the taverns in the neighbouring town, but on feast-days they were apt to slip through the monastery gates and glide unseen among the monks at the refectory table. . . . If at such times a jolly, rosy-faced brother appeared to the carnal eye and ear to grow obstreperous or maudlin, to speak thick, or to reel and stagger in his gait, be sure it was not the fiery spirit of the grape that moved the holy man ; it was a

spirit of quite a different order." The line between such a state and a pure delusionary condition is indeed a fine one, and the author makes the following comment: "It is easy to suggest that the abbot's wits were unsettled, that he suffered from hallucinations and so forth. This may have been so; yet a mode of thought like his seems to be too common over a great part of the world to allow us to attribute it purely to a mental derangement. In the middle ages, when the general level of knowledge was low, it seems probable that a state of mind like Richalm's may have been shared by multitudes even of educated people, who have not, however, like him, left a monument of their folly to posterity." Indeed, a study of witch persecution in the middle ages as it is chronicled by numerous writers, of such a wide-spread epidemic as the dancing mania as set forth in the pages of Hecker (10), or of the wild vagaries of the Flagellants, will go far to support such an assertion: and such a pitch did matters rise to that one writer has remarked that "society seemed to be divided into two great factions, the bewitching and the bewitched"; while another said "the world seemed to be like a large mad-house for witches and devils to play their antics in."

It has been said that anything can be proved by statistics; it might with equal truth be maintained that any course of action, no matter how vicious or cruel may be its results, can be justified by a sufficiently ingenious application, or misapplication, of Scriptural texts. The texts are not lacking; the various sects have manfully done their duties in providing the agents who carried out what they took to be the admonitions to the uttermost limits of hideous barbarity. Whilst the critics have disputed over the exact interpretation of the text which has been taken as *the* command to root out and destroy the devil's emissaries, hundreds of thousands of men, women, and even children of a tender age have been racked, tortured, strangled, and burned. Little has it mattered to them whether the Hebrew word bore the meaning attributed to it; it sufficed that the text read, "Thou shalt not suffer a witch to live," and on that, and on other texts, all these thousands were sent shrieking out into the unknown. In Leviticus we read: "The soul that turneth after such as have familiar spirits, and after wizards, I will even set my face against that soul, and will cut him off from among his people" (xx, 6); and again—"a man

also or a woman that hath a familiar spirit, or that is a wizard, shall surely be put to death ; and they shall stone them with stones, and their blood shall be upon them" (xx, 27): while in Deuteronomy (xiii, 5-11) it is commanded "that prophets and dreamers of dreams, who by signs and wonders that come to pass would persuade Israelites to obey other gods," shall be put to death. The Inquisitors and other persecutors did not lack the justification of scriptural authority. But, as is well known, these ideas of possession and demoniacal influence are not confined to Old Testament writers : they are found, not one whit abated, set down in the New Testament. Commenting on these facts a modern writer has the following statement, which may well be adduced as illustrating the persistent influence of fallacies or misinterpretations when these have the weight of authority to support them. "As frequent accounts are given," says the Rev. Dr. Rice (11), "in the Old Testament and in the New, of the devil and of demons entering into persons, there is no reason to doubt that they do so now."

Such beliefs, supported primarily by a weight of authority, which we must realise was for centuries absolutely incontrovertible, and steadily adding the great names of zealous advocates as time progressed, could not fail to have an overwhelming influence upon thought. When kings and pontiffs, learned theologians, grave physicians, judges, and statesmen acquiesced in the credibility of such doctrines, it followed inevitably that the common vulgar, adding often enough the products of their own disordered imaginations, should be in a state of frenzied fanaticism extremely conducive to the production of illusions and hysterical outbursts. As we have endeavoured to show, these ideas of witches and their maleficent powers date back to a very early period in the history of mankind ; but it was not till the Oriental teachings had been transplanted into occidental minds that they produced their full fruition ; even then it was comparatively late before the harvest came. When it did it was as a crop of persecutions, of torturings, of madness, and of death, such as the world has fortunately rarely seen. There had been sporadic instances of what has been called the witch mania in the early part of the fourteenth century when the Knights Templars were attacked with this weapon, and again in the case of Joan of Arc, who

was burned in 1429, and of the Waldensian massacres in 1459; but it was not until Pope Innocent VIII in 1484 promulgated his infamous bull that witch-prosecution, with all its attendant horrors, blazed up in all its strength. From that time on for the space of some two hundred years the staple industry in most European countries may be described as witch-burning; and at times worthy people had to protest against the terrible expense to which the community was put in order to provide sufficient fire-wood! "No land and no people were behind the rest in this cursed drama . . . every party in religion vied with the others for the first rank in the persecution of witches," says Ennemoser (12); "hundreds of thousands were sacrificed, and misery spread its wings of darkness everywhere. Even the sick, and children of from nine to fourteen years of age, as well as old men, were struck by the destroying power. . . . People of rank, consideration, and wealth, were often, from envy, revenge, or hatred, accused of witchcraft, because their understanding made them more distinguished, their diligence richer, and their rank more honoured. The protestations of innocence were treated as lies; the anguish and terror of the accused were regarded as proofs of guilt; and they who courageously stood firm by the truth had, by hours of continued torture, lies pressed out of them, for death alone ended such misery." With such a state of affairs existing it is little wonder that those of weak intellect were thrust past the borderland into sheer insanity, and then they, along with those who were already insane, were immolated in order to chase the demons from their happy hunting-grounds. The minds of many, being in a high state of suggestibility, acquired with avidity the prevailing ideas; just as in different epochs delusions are systematised in accordance with discoveries in science, religious fanaticisms and revivals, artistic fads and fancies, or any of the other matters which bulk largely in the public imagination, and at the present time persecutory ideas are formed chiefly in regard to electricity, phonographs, telephones, wireless telegraphy, and so on; so in the fifteenth, sixteenth and seventeenth centuries they were formed in regard to witchcraft. "People possessed of a lively imagination began to dream that they stood in all kinds of relations to the Evil One," says Caius. "There are cases in which imaginary witches surrendered themselves voluntarily to the Inquisition."

Considering the high reputation which the most un-Holy Office had acquired for its pleasant Sunday (and other) afternoons with the people, we may well consider this latter instance as indeed a morbid mental symptom, and one on which alone there need be no hesitation in certifying the possessor as of unsound mind! Yet whatever any poor deluded creature stated inculpating himself or herself, or incriminating other people, was considered as sufficient to warrant the exaction of the most extreme penalties. Hence also hysterical young women became a power for evil. Numerous cases are quoted by contemporary writers, *e.g.*, the afflicted person "with extream fits and heavings, brought up pins, wool, knotted thread, thrums, rosemary, walnut leaves, feathers, etc.!" One can only marvel at that "etc." There were giants on the earth in those days. Not content with that feat, however, the patient on another occasion produced proudly from his economy "eleven pins, and a knitting needle folded up in divers folds." Cotton Mather, who was born in Boston in 1663, and was an eminent divine and witch-prosecutor, gives a charmingly ingenuous description of his procedure in a certain case: "Amongst the many experiments that were made, Mr. Mather would bring to this young maid the Bible; his Grandfather Cotton's *Milk for Babes*; his father's *Remarkable Providences*; and a book to prove that there were witches: and when any of them were offered for her to read in, she would be struck dead, and fall into hideous convulsions." These good books (he says) were mortal to her; and lest the world should be so dull as not to take him right, he adds, "I hope I have not spoiled the credit of the books by telling how much the Devil hated them." Evidently the Devil was a better literary critic than many of the enthusiastic followers of Mather! Dr. More, in his *Antidote against Atheism*, maintains that "some spirits are very great fools," but it seems clear that the one under discussion cannot be included in such a category. Good Dr. More, by the way, waxes facetious in the same connection, and remarks that "there are as great fools in the other world as there are in this"; considering the times in which he wrote this must be reckoned as a swingeing comment on the hereafter—according to More.

It was, however, no laughing-matter, all this hysterical vapouring. Numbers met their doom because of the accusa-

tions of these "brain-sick fools." There was, for instance, the famous case of the Witches of Warbois in 1593, a family consisting of an aged father, a demented old mother of some four score years, and their daughter. They were accused by the children of the neighbouring squire of exerting a baneful influence upon them. These young people indulged in the usual display of symptoms, such as crying out "loud and often," lying in trances for half-an-hour at a time, becoming cataleptic, and so on. And in due course the Samuel family were brought to justice for their horrible misdeeds of causing symptoms of hysteria in a pack of degenerate little liars, whom Dr. Harsnet could well have included in one or two of his categories of those "that have their brains baited, and their fancies distempered with the imaginations and apprehensions of witches, conjurers, and fairies, and all that lymphatical chimæra." "I find them," he says, "to be marshalled in one of these five ranks : children, fools, women, cowards, sick or black melancholick discompos'd wits." (15) After a true bill had been returned against the Samuels, the poor demented old woman "set up a plea of being with child . . . at which all the court laughed, and she herself most of all, thinking it might save her." (16) So they were executed ; and "when these three helpless wretches were fairly dead, the children," says Mrs. Lynn Linton in her extremely interesting collection of witch stories, "upon whose young souls lay the ineffaceable stain of murder, and whose first steps in life had been through innocent blood, gave up the game and pronounced themselves cured." That is a fair example of the state of mind into which people had passed ; any evidence, even the most tainted, was sufficient to entail horrible and lingering deaths for the accused—"even infamous persons are lawful evidence in the case of witchcraft"—tortures were made use of to extort confessions, and courts of justice conducted their proceedings in a manner strikingly reminiscent of the trial in *Alice in Wonderland*.

Many years had to pass before the vast delusion could be overcome and the civilised world freed from the pest of witch-prosecution. It was long ere "even the boldest opponent of the witchcraft delusion dared to fling it off ; not the bravest man or freest thinker could shake his mind clear of this terrible trammel, this bugbear, this mere phantasm of human fear and

ignorance, this ghastly lie and morbid delusion." (17) The advance of science and the spread of enlightenment were, however, incompatible with the continuance of gross superstition. Men like Reginald Scot began to realise that insanity, ignorance and superstition were the reasons for those phenomena which such writers as James I credited to witchcraft and to devilish powers. For instance, Scot, who wrote his famous book in 1584, when the mania was at a period of its greatest prevalency, and when it was dangerous for people to hold views antagonistic to witch-prosecutions, says: "If it [he is speaking of confession] be voluntary many circumstances must be considered, to wit, whether she appeach not herself to overthrow her neighbour, which many times happens through their cankered and malicious melancholick humour; then, whether in that same melancholick mood and frantick humour, she desired not the abridgement of her own stories; which thing, Aristotle saith, does oftentimes happen unto persons subject to melancholick passions; and as Bodin and Sprenger say, to those old women called witches, which many times (as they affirm) refuse to live, threatening the judges, they will lay hands upon themselves, and so make them guilty of their damnation . . . and as they sometimes confess impossibilities, as that they fly in the air, transubstantiate themselves, raise tempests, transfer or remove corn, etc., so do they also confess voluntarily that which no man could prove and that which no man would guess, nor yet believe, except he were as mad as they; so as they bring death wilfully upon themselves; which argueth an unsound mind." (18) And in another part of his book, which marks an epoch in the history of thought and an advance of knowledge in regard to responsibility of the insane: "He is not by conscience to be executed who hath no sound mind nor perfect judgement." . . . "These old women being daunted with authority, circumvented with guile, constrained with force, compelled by fear, induced by error, and deceived by ignorance, do fall into such rash credulity, and so are brought unto these absurd confessions. Whose error of mind and blindness of will dependeth upon the disease and infirmity of nature, and therefore their actions in that case are the more to be borne withal; because they being destitute of reason can have no consent. . . . There can be no sin without consent, nor injury without a mind to do wrong.

Yet the law saith further that a purpose retained in mind, doth nothing to the private or publick hurt of any man ; and much more then an impossible purpose is unpunishable. . . . A sound mind willett nothing but that which is possible." Yet, though Scot had written these memorable and judicious words in 1584, a few years later King James could write his *Daemonologie*, in which blind ignorance, fatuous triviality, and sheer indecency form a disagreeable mixture. "If anything were wanting," says Mrs. Lynn Linton, "to complete one's abhorrence of Carr's patron and Raleigh's murderer—one's contempt of the upholder of the divine right of kings in his own self-adoration as God's vicegerent upon earth—it would be his part in the witch delusion of the sixteenth century. Whatever of blood-stained folly belonged specially to the Scottish trials of this time—and hereafter—owed its original impulse to him ; and every groan of the tortured wretches driven to their fearful doom, and every tear of the survivors left blighted and desolate to drag out their weary days in mingled grief and terror, lie on his memory with shame and condemnation ineffaceable for all time." (19) These be strong words, but anyone who cares to study the records of the time will not think them undeserved. Did not James write also a *Counterblast to Tobacco*? Of him Sir Walter Scott remarks: (20) "The pedantic king, having exercised his learning and ingenuity in the *Demonologia*, considered the execution of every witch who was burnt as a necessary conclusion of his own royal syllogisms."

It is all a pitiful history of darkness, ignorance, delusion and superstition, but withal an amazingly interesting revelation of the workings of the human mind, and a fascinating study in historical psychology. We see the nations struggling after the better, their feet planted in the mire of the worse things, envy, hatred, fanaticism, bigotry, intolerance, and all uncharitableness ; we hear the cries of the tortured rising from the midst of the flames, the shrieks of the sufferers stretched upon the rack. It is a picture more lurid than any that Dante has described, for it is real. But faintly emerging from the gloom of ignorance and the haze of superstition the light of reason shines out, pale and wan in the early days, gradually gaining in brilliance as the years progress, yet slowly and by degrees, faithfully and unremittingly tended by the votaries of science,

illuminating the dark and secret places of the earth: and still this—

“Intellectual power, through words and things,
Goes sounding on, a dim and perilous way.”

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(¹) A paper read at the South-Eastern Divisional Meeting at Bethlem Hospital April 25th, 1911.

Some Instances of Sudden Death with Post-mortem Findings.(¹) By J. FRANCIS DIXON, M.D.Dub., Senior Assistant Medical Officer, Three Counties Asylum, Arlesey.

IN complying with the Honorary Secretary's request to read a short paper on some clinical or pathological cases, it occurred to me that it might be of some interest to the members to review a few instances of sudden death, or rather sudden and *unexpected* death, where the cause was unsuspected in life, and in some instances left in doubt after *post-mortem* examination.

Perhaps little apology is needed for taking a subject not

directly connected with psychiatry when one considers the perturbation caused in the minds of the authorities of an asylum on one of their jealously guarded charges being unexpectedly found dead.

I do not propose to go systematically into the cause of sudden death, nor to give an exhaustive list of examples. I intend to mention only a few instances, some of which have come under my own personal observation, instances which I think may be of special interest to those engaged in the care of the insane. I purposely omit cases in which the cause of death was fairly obvious, and those in which sudden death was not an unexpected termination.

Brouardel gives the case of an insane patient who died suddenly in the St. Garard Asylum. He had complained before death of pain and a feeling of suffocation. Some of his fellow-patients had accused an attendant of ill-treating him. At the *post-mortem* examination no marks of violence were found on the body. Over the sacrum, however, there was a bed-sore, and in the lungs were septic infarcts from which he had died.

Tumours and abscesses may exist in the brain and give little or no indication of their presence.

A workman, apparently in normal health, became engaged in an altercation with his employer, when he suddenly fell down dead. His master was arrested and locked up. The *post-mortem* examination revealed three small pedunculated fibrous tumours on the anterior wall of the fourth ventricle. Thus there had been in this man's brain for some time a menace of sudden death, awaiting only some unusual excitement to bring it about.

Brouardel also reports the case of a man whom he sent into hospital suffering from otitis media, and who was discharged in the course of a fortnight apparently quite well. On the night of his return home he went to a dance and partook freely of alcohol. The next day, while at his work, he fell down unconscious. From this he slowly recovered but died suddenly the following day. At the *post-mortem* examination there was found an abscess the size of a hen's egg in the temporo-sphenoidal lobe. This abscess must have existed for some time, during which he was apparently in good health.

I am indebted to Dr. Fuller for notes of a case of sudden death in a woman, æt. 39. She had symptoms of chronic bronchitis and emphysema, a harsh cough and a somewhat husky voice. There were no physical signs pointing to the condition which was found after death, namely, a sacculated aneurysm projecting from the posterior wall of the arch of the aorta, passing upwards, backwards and to the right, pressing on and displacing the trachea, and involving the right vagus and recurrent laryngeal nerves.

The following are three cases which have occurred in my own experience. M. W—, a dement, æt. 70, in her usual state of health, which was quite good for her age, was, on the morning of April 5th, 1907, stooping to put on her boots when she fell dead. The *post-mortem* examination showed marked engorgement of the lateral sinuses with fatty degeneration and dilatation of the right cardiac ventricle.

M. A. F—, chronic maniac, æt. 69, in her usual health, was found dead in bed on February 29th, 1909. The *post-mortem* examination showed a rupture of the anterior coronary artery and the pericardium full of blood. *A propos* of diseased coronary arteries, Osler relates the case of a large, powerfully built imbecile, æt. 35, at the Elwyn Institute, Pennsylvania, who had for years done heavy work about the place. He died suddenly one day without any preliminary symptoms. At the *post-mortem* examination the anterior coronary artery was occluded by obliterating endarteritis and a main branch of the posterior artery was blocked. In cases of sudden death this lesion should be looked for, as it may be the sole cause.

M. C—, chronic maniac, æt. 54 (my third case), apparently in good health, was found dead in bed on the morning of December 29th, 1910, lying on her back with a pinch of snuff between the forefinger and thumb of the left hand and grasping a small paper packet of snuff in her right hand. There was a little snuff scattered on her bare chest. *Post-mortem*, the pancreas was found enlarged and infiltrated with blood; there was a large hæmorrhage into the great omentum and another one into the lesser omentum. There was also extensive hæmorrhage at the base of the brain due to rupture of two of the small transverse branches of the basilar artery. Cardio-vascular degeneration was well marked. Could a fit of sneezing have been the immediate exciting cause of death?

Sudden death in epileptic seizures, apart from mechanical obstruction, may be due to rupture of the heart or spasm of the glottis, but these are very rare. A more likely cause is sudden paralysis of the respiratory centre.

The following are notes of a case of sudden death in an epileptic woman, A. S—, found dead in bed on September 29th, 1888. "Shortly after 7 o'clock this morning I was called to see the above patient, and found her lying on her face with her nose pressed into the pillow. A little froth was exuding from her mouth and her nose was slightly flattened to the right side. Both arms were flexed under her chest, thumbs turned in, and legs perfectly straight with feet turned towards mesial line. *Rigor mortis* was present. It would seem as if she lay almost on her face with body quite prone, as was her habit, and being seized with a fit in this position, no cry was heard, and her face being pressed close to the pillow she could not get her breath on the first inspiratory effort, and so was suffocated."

I think it is open to some doubt whether epileptics are ever suffocated through having a fit in the prone position when in bed. I have tried pressing my face into a pillow with all the weight of my body, and have found that I could still breathe with little or no difficulty. The cause of death in the above case was probably sudden paralysis of the respiratory centre. This explanation was believed in and taught by the late Hilton Fagge, and is perhaps the best that can be given of the death of chronic epileptics who are occasionally found dead in bed without any evidence of adequate mechanical obstruction being present. The importance of the application of artificial respiration to cases found early enough will be apparent.

The *post-mortem* findings in cases of death from epilepsy may be very indefinite. "Punctate ecchymoses in the skin of the neck and shoulders, congested conjunctivæ, bitten tongue and froth in the bronchi" may be the only things to go on.

A case of sudden death in the course of an hysterical fit has been published by Mollière, of Lyons.

As is well known, sudden death frequently occurs in what is known as the status lymphaticus, a condition which may not be suspected during life, and which is associated with a general hyperplasia of the lymphoid tissues of the body. In these

cases general anæsthesia and the shower bath have been among the exciting causes of sudden death.

The following case of sudden death in cancer of the mediastinum is related by Brouardel.

An attendant in the Necker Hospital was accused of having strangled a restless patient in his bed. No marks of violence could be made out at the *post-mortem*, but the trachea was found flattened by a large mediastinal tumour which had caused asphyxiation.

With regard to accusations against attendants, etc., he also relates the following: At the St. Ann Asylum a comparatively sane patient was employed helping to keep the books. On looking through the register one day he came across the name of a deceased inmate with the cause of death given as "internal strangulation." This set him thinking, and the conclusion was forced on his imagination that the deceased patient had been strangled by one of the doctors. He managed to communicate with the police, who took the matter up. The body was exhumed, and the autopsy revealed the "intestinal strangulation" which had caused death.

In cases of simple pleural effusion, where the heart is somewhat displaced, sudden death may occur on slight exertion, such as getting out of bed. The pathology is uncertain. Weil says it may be due to—

(a) Thrombosis or embolism of the heart or pulmonary artery.

(b) Œdema of opposite lung.

(c) Degeneration of heart muscle.

(d) Mechanical impediment of the circulation owing to dislocation of heart or twisting of large vessels.

The other week I heard of a case of sudden death of a strong young man who was undergoing a course of "606" treatment at a well-known West End nursing home. The cause was embolism.

Sudden death may be brought about by mental shock, and it would appear that the innervation of the heart and splanchnic area is most affected in such cases.

The following is an example of sudden death from horror: During the French Revolution, in the early days of the guillotine, and while M. Sanson, the head executioner, was busy with his work, a young man from the crowd offered to

lend him a hand. Sanson acquiesced, and letting the young man pull the cord, directed him to hold the head up for exhibition to the people. While in the act of doing this he staggered and fell dead. Syncopal attacks, which affect new students at operations, and some persons at the sight of blood, are interesting in this connection.

Grief, and especially joy, may cause sudden death. A little girl, æt. 7, attending a London Board School, on passing an examination appeared excited and overjoyed at the result. She was found dead on the floor the same day. The medical evidence, after a *post-mortem* examination, was to the effect that the emotional excitement had caused syncope.

Dr. Hack Tuke says sudden death as a result of a rebound from grief to joy has overtaken several women whose husbands have been reported lost and have ultimately turned up.

The following is taken from a daily paper of recent date :

"Death from excitement.—A story of death on the eve of success was told at the Poplar Coroner's Court yesterday when an inquest was held on Charles Edwin Brett, æt. 71, a saw-mill engineer, of Montague Place. The evidence of the widow was to the effect that on Monday Brett came home from his work in a very elated condition, as some machinery he had patented had, he said, worked excellently. His wife was taking off his boots, as usual, when on looking up she saw he was dead. The widow added that her husband had worked at his patent for many years, and it had only been got into perfect order on the day in question. Medical evidence showed that death was due to heart failure caused by excitement. The coroner said it was most unfortunate that immediately after the successful conclusion of his years of work the man should have died so suddenly. It was evident that the excitement had been too much for him. A verdict was returned in accordance with the medical evidence."

As in dealing with our patients force has sometimes to be resorted to, it may not be out of place to close my remarks by mentioning briefly a few instances where slight injuries to certain parts of the body have resulted in sudden death.

Sir Astley Cooper related the following case : A man was attempting to lift a weight when another came up, and jocularly pushing him in the epigastrium, told him to stand aside and let a better man show what he could do. The man so pushed

dropped down and expired on the spot. At the *post-mortem* examination nothing was found to account for death. Women have died suddenly while undergoing a simple vaginal examination.

The hypogastrium, cardiac region, testicles, laryngeal regions have all furnished examples of a similar nature. Minor struggles with patients having distended bladders have often ended fatally from rupture. Maschka reports the case of a boy who was struck on the anterior part of the larynx by a stone. He fell dead; no local or other lesion was found at the *post-mortem* examination.

Instances might be multiplied indefinitely, and I have no doubt you have all had cases in your experience where death has stepped in with rude and unexpected suddenness.

(¹) A paper read at the South-Eastern Divisional Meeting held at Bethlem Hospital April 25th, 1911.

Asylum Dysentery. (¹) By W. J. ADAMS ERSKINE, M.D.Edin., Senior Assistant Medical Officer, City Asylum, Nottingham.

MY excuse for reading to you a paper on asylum dysentery must be that, as the Commissioners in Lunacy state, "there is still a singular difficulty in affording a reasonable explanation of the exceptional prevalence of dysentery in asylums."

That overcrowding is a factor none of us will deny, but it is a factor in all epidemics of a contagious or infectious nature, and we must look further. That constipation is a factor is certain; but it cannot be the only factor, as there are hundreds of constipated people in the world who never get colitis, though the success which attended Dr. Bevan Lewis's efforts in abolishing constipation and at the same time dysentery from Wakefield Asylum shows its importance. That the naturally dirty habits of the insane have something to do with it, as stated by Dr. Sidney Steward in an article in the *Journal of Mental Science* for April, 1910, is also probable. That the peculiar condition of the nervous system of the insane is a factor we will admit.

No doubt there are dysentery carriers, just as there are typhoid and diphtheria carriers, and their presence must always

be a great danger, and these patients, although apparently well, will infect others with dysentery. Precautions must also be taken with regard to cases of dysentery which have apparently recovered.

I propose to draw your attention to-day to three other factors in the causation of dysentery.

First, I think the presence of kidney disease renders a patient more liable to dysentery. Kidney disease is very common in asylums, as is shown by *post-mortem* results, but in the insane the clinical signs of it may be few or overlooked. I have been struck by the fact that in the nine deaths in cases of dysentery which we have had here since the beginning of 1903, marked kidney disease was present in every case—always of a chronic kind.

Continental writers show a connection between gout and rheumatism and colitis, and the kidneys are affected in these diseases.

There is a peculiarly slimy condition of the peritoneal surfaces of the intestines present in kidney disease. My attention was called to this by our head attendant, who assists at *post-mortem* examinations, and he asked me why it was so. On further examination we found in all these cases marked kidney disease. That nephritis and colitis are associated has been noticed by several authors. In Allbutt's *System of Medicine* Dr. Dickinson mentions ulcers of the intestines in association with nephritis. Dr. Hale White gives instances of acute colitis with Bright's disease, but says it is rare. Professor Debove states that floating kidney is often associated with colitis, and describes a case where fixation of the kidney cured the condition.

We ought, therefore, to be very careful of cases whose kidneys we know to be diseased, and pay strict attention to their diet and bowels. Further, when dysentery is epidemic these cases will require to be guarded from infection.

In disordered renal excretion putrefactive toxins must be excreted too slowly. Probably the extra work of excretion thrown upon the bowels of the patients with kidney disease is a factor in their liability to dysentery.

Secondly, it seems to me that tubercular cases are especially liable to dysentery, and, if attacked, become more dangerous as sources of dysenteric than of tubercular infection. Our tuber-

cular rate is rising with our dysentery. Arbuthnot Lane says he believes that tubercle very rarely affects patients whose resisting power is not lowered by intestinal auto-intoxication, and reports marvellous results in the treatment of tubercular joint disease from using liquid paraffin as a vehicle to facilitate drainage along with the use of tuberculin. He has given up intestinal antiseptics. Such patients with intestinal auto-intoxication would be prone to colitis. Tubercular cases, as is well known, are peculiarly liable to influenza, and perhaps it is influenza which causes their dysentery.

Thirdly, this brings me to—

Influenza as a Cause of Dysentery.

I have been struck by the facts that influenza and colitis have been epidemic here at the same time ; that three annual epidemics of colitis have followed three annual influenza epidemics, and that cases of influenza have afterwards developed colitis.

The more one sees of influenza the more one feels what a great factor it is in the production of disease. It prepares the soil by lowering the resistance, it intensifies chronic disease, and attacks which are apparently mild may induce, weeks afterwards, grave disease and insanity. That sequelæ sometimes follow it somewhat tardily is to be noted, and in inquiring for a history one often has to go back months. It finds out the weak spots in our constitutions and indicates by its results what diathesis we belong to. We all know that there is such a thing as gastro-intestinal influenza, but it would be an extremely difficult thing for most of us to prove that any particular case of gastro-intestinal disturbance was due to influenza.

There still exists a loose practice of speaking of any febrile case (except typhoid) in which hæmorrhage from the bowel occurs as one of dysentery, yet in influenza blood may be found in the stools without there being any ulcer in the intestine (Norman Dalton, *Practitioner*, January, 1907).

In *post-mortems* on various cases of influenza, some with pneumonia and one with cerebritis, I have noticed that the mucous membrane of the stomach and intestines is reddened and exhibits many petechial spots (like flea-bites). No doubt

from such hæmorrhage takes place. I have had cases of influenza with various hæmorrhages, some with epistaxis, some with menorrhagia, some with hæmaturia, and some with hæmoptysis. Most of these were slight and easily stopped.

I now quote from Prof. Leichtenstern, formerly of Cologne University (1905):

"One addition to the pathology of influenza furnished by the most recent epidemic is the demonstration that influenza may give rise to acute hæmorrhagic gastritis and enteritis and sometimes as a sequel also to peritonitis. Many cases of simple intestinal hæmorrhages as well as of severe bloody, mucous, dysenteroid diarrhœa in influenza have been described. The intense hyperæmia of the intestinal mucous membrane frequently found upon *post-mortem* examination with the addition of ecchymoses and streaky hæmorrhages is sufficient to account for the simple hæmorrhages. This variety of hæmorrhage from the intestine is analogous to epistaxis and to the influenzal hæmorrhages of the pharynx, larynx, and bronchi. This hyperæmia of the intestinal mucous membrane may progress to inflammation, necrosis, and ulceration."

In the *British Medical Journal*, 1891, Dr. Frank Nicholson records cases of influenza with diarrhœa, accompanied by the discharge of mucus, membranous flakes, blood and sloughs. Such cases occurring in asylums must be difficult to distinguish from true asylum dysentery. Therefore I beg to submit that some cases of so-called asylum dysentery are really cases of influenza, and secondly, that influenza is a cause of asylum dysentery. I will now give you some of my reasons.

In the Sixty-fourth Report of the Commissioners in Lunacy I find that the most marked outbreaks of asylum dysentery during 1909 were at Whittingham, Barming Heath, Manor, Cotford, and Derby Borough Asylums. I find also from the reports that in *all* these asylums there were outbreaks of influenza preceding or at the same time. Dr. Macphail, of Derby, drew attention to the fact that the first epidemic of dysentery in the history of the asylum occurred there in February and March following an outbreak of influenza in January, and he notes that all the cases who subsequently developed dysentery had been previously the victims of influenza.

The history of our dysentery is as follows:

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In 1903 we had one case, on the female side. There were two or three cases of influenza at the same time.

In January and February, 1904, there were two cases of dysentery and several cases of bronchitic influenza on the female side, followed by an influenza epidemic in March, one case being a gastro-intestinal one. We had no further dysentery cases until 1909.

In February, 1909, we had one or two cases of influenza on each side, and from February 1st to March 25th we had an epidemic of eleven cases of dysentery on the female side, and four cases of severe diarrhœa (probably influenzal). At the same time we had seven slight and two severe cases of diarrhœa on the male side. One female suffering from dysentery died, and the diagnosis was verified *post mortem*.

We had no further cases of dysentery till March 3rd, 1910, when the same sequence of events happened.

From October, 1910, to June, 1910, we had an epidemic of influenza attacking seventy-four female and thirty-four male patients, twenty-three female and sixteen male attendants.

In February, March, and May, 1910, that is, while the influenza was epidemic, and four months after its start, there was an outbreak of dysentery—nine cases in all on the female side—accompanied, in February, by an epidemic of diarrhœa on the male side—eight cases in all.

In June we had several cases of influenza on the female side, some of whom had diarrhœa.

In August we had a solitary female case of dysentery, which died.

In September and October we had four cases of what I now consider to have been influenzal colitis on the female side. They were characterised by mildness, slight elevation of temperature at the beginning, pain in back and legs, and headache, with some blood in the stools and very little mucus.

In November influenza started again in its various forms, and has continued up to the present time.

In November and December nine female patients and six nurses had attacks of influenza, and there was one case of influenzal colitis.

From January to April seven nurses and eleven attendants have been affected, and amongst them it assumed the ordinary form, the gastric form, a rheumatic form, and a tonsillar form.

At the same time (January to April) there were eighteen male patients affected, and of these four had diarrhœa and five others developed dysentery. There was an outbreak of dysentery on the male side from March 27th to the present time (April 24th), affecting twenty cases in all (including the five who had undoubted influenza).

There was one death among the patients who had had influenza first. On the female side we had only one case of dysentery in February, and she died.

Thus for three years in succession we have had an epidemic of dysentery in the early months of the year following an outbreak of influenza.

Since 1903 we have had forty-six cases of ulcerative colitis with seven deaths directly due to colitis—a death-rate of about 15 *per cent.* The death-rate of our last epidemic is 7.4 *per cent.*

In all England in 1903 the percentage was 21 and in 1908 22. In Dr. Steward's cases those treated with salines gave a death-rate of 8.3 *per cent.* and those treated otherwise one of 32.8 *per cent.*

Treatment.—The preventive treatment consists in the regular administration of purgatives and the education of the nursing staff. Nurses who have had to deal with dysentery cases get very enthusiastic and bring curious cases to one's notice. I do not think we can say that because any given patient has mucus in his or her stools that such a case is one of asylum dysentery. Nevertheless, it would be safest to keep such a case under observation.

There can be no doubt that isolation is the best way to treat dysentery cases in the interests of the other inmates. In March, 1910, we had all our cases in the Isolation Hospital and stopped the epidemic. The windows were kept wide open and there was plenty of fresh air. Treatment in the fresh air under a verandah would be ideal if the weather permitted it. Where nothing better can be devised isolation in single rooms is better than in the hospital wards of the asylum. The windows must be well open and there should be a fire. A list of cases who have had colitis should be kept and such cases should be watched. If we can reduce our influenza I think we shall reduce our dysentery.

Influenza cases should be isolated if possible in an influenza

ward. Members of the staff who have influenza should not be visited by others who are employed in the asylum any more than is necessary.

Cases of influenza after being allowed up or out of hospital should be watched for constipation, especially if they have had the gastro-intestinal form. Both dysentery and influenza cases should be kept away from kidney cases, tubercular cases, and paralytic cases.

Medicinal.—Our routine treatment is to administer magnesium sulphate. We have given it in various ways and doses, but now I generally give $\frac{1}{2}$ oz. in 2 oz. of water morning and evening until the stools become watery and the blood and mucus cease. Sometimes this happens after two doses. If blood or mucus recur magnesium sulphate is again given.

The administration of purgatives in influenza of the alimentary type may give rise to obstinate diarrhoea, and this is to be noted when dealing with colitis which owes its origin to influenza, so that we do not push the administration of magnesium sulphate too far.

Drs. Robertson and Elkin, in their report on the epidemic of influenza at the Royal Asylum, Morningside, Edinburgh, state that diarrhoea was frequently started by the administration of laxatives.

In some cases of influenza there is a sudden abortive diarrhoea and then the patient gets better. During epidemics of dysentery and diarrhoea I have had cases where one or two 5-gr. doses of quinine sulphate have been followed by a cessation of diarrhoea, but these may have been abortive cases of influenza.

As a rule influenzal diarrhoea is best treated by a mixture of sodium salicylate and bismuth carbonate.

In dysentery I have found another drug useful: it is tincture of belladonna. I generally give it in ten-minim doses thrice daily after the first day of mag. sulph. It tends to keep the bowels open and reduce the mucus. In some cases it seems to have an almost specific effect.

If there is abdominal pain hot applications generally remove it. We never use lavage of the intestine. Enemata are useful at the beginning if the case is one of loaded bowel.

Diet.—In severe cases milk only is given or milk and soda-water. In less severe cases and later on in severe ones milk

puddings, tea, thin bread and butter without crust may be given. I often give porridge and have found it do no harm. It tends to keep the bowels open. Vegetables I do not find so obnoxious as some of the continental writers say. The undigested vegetable fibre may act as a mild scrubbing-brush to the dirty mucous membrane. Stimulants are not often required. In certain cases there is a tendency to collapse, the cardiac action is feeble and there is a feeling cold ; in these alcohol is good. In some cases whisky helps to keep the bowels open.

I have tried lactic acid therapeutically and the patients did well on it. I have also tried junket and whey with good results. We have used plasmon in some debilitated cases and they improved on it.

Disinfection.—Of course this must be thorough. We use kerol here as a rule.

Our hope for the future must be in the sera and vaccines, and money spent on these will in time return good interest.

(¹) A paper read at the Northern and Midland Divisional Meeting at Nottingham, April 27th, 1911.

Syphilis and Congenital Mental Defect. (¹) By C. G. A. CHISLETT, M.B., Ch.B.Glas., Assistant Medical Officer, Woodilee, Lenzie.

WITH the exception of cretinism, mongolism and amaurotic idiocy, and juvenile general paralysis, it may be said that the only classification of congenital mental deficiency is one based on the degree of mental defect.

"Idiocy," "imbecility," and "mental debility" are terms employed to distinguish somewhat arbitrary classes of varying grades of mental deficiency, but these terms have no ætiological significance. Even the neurological distinctions based on the varieties of motor affection in idiots and imbeciles with cerebral palsy do not offer a satisfactory basis for a scientific classification of such cases.

A classification or interpretation on anatomical grounds must also, in many cases, prove unsatisfactory, inasmuch as after death, the condition found can in many cases only

represent the remains of the processes originally responsible for the disease: for example, in two cases of general paralysis described by Alzheimer, in addition to the anatomical changes characteristic of the paralysis, there were also small nodules present in the brain, representing areas of retarded development. These areas, from site and extent, seemed to be due to an earlier disease of the blood-vessels, which was undoubtedly syphilitic in origin; but the lesion at the time of death was so old as to render its character impossible of recognition had a general paralysis not suggested the specific origin of the condition.

Thus the part played by syphilis as a factor in congenital mental disease has, until recently, been estimated only by anatomical and clinical evidence. It is a remarkable fact that the evidence adduced by anatomy on the whole has scarcely confirmed the clinical conclusions: that is to say, the number of cases in which the nervous system is affected in children who die in the first weeks of life is small compared with the percentage of those whose nervous systems show in the first year of life evidence of deficiency attributable to syphilis in the parents. This apparent discrepancy, however, finds its explanation in the fact that those children who die early die as the result of a very acute affection, whereas the nervous symptoms would appear to be the result of a more chronic infection. For example, Dr. Manson has examined in the Western Asylums Research Institute six cases of congenital syphilis, two of which were premature births, and the others died in the first few days or weeks after birth, and in none of these cases was the nervous system affected. On the contrary, in every case advanced degenerative changes of the lungs or liver, or both, were found, and in every case spirochætes were easily demonstrable. On the other hand, a clinical investigation of 230 cases of idiocy by Heubner showed that about a fourth of these were the children of syphilitic parents.

It must, however, be recognised that syphilis as an ætiological factor has been held responsible for the most varied forms of mental and nervous disease. For example, in the case of Little's disease, the symptoms were referred by Little himself to meningeal hæmorrhage incidental to accidents during labour. It has, however, been demonstrated that such

hæmorrhages have, in many cases, a syphilitic basis ; the *rôle* of syphilis in this disease is now generally admitted ; and in the case of allied conditions of cerebral paralysis in children, among the various ætiological factors syphilis occupies a place of primary importance. It is obvious, also, that so far as anatomical processes are concerned, the manifestation of changes in the young must differ widely from those in the adult. In the adult, the syphilitic processes are of the nature of gummatous infiltrations, endarteritis, meningitis, or meningo-encephalitis. In the young, growing, and plastic brain, there is always, in addition to the destruction of developed elements, an interference with, or obstruction to, the process of development.

The part played by syphilis in cases where the nervous disturbance is purely psychical is, at present, difficult to determine, and this field of research can only be explored by the application of the biological test. In the same way, those cases which are due to syphilis as a predisposing factor which has reduced the resistance of certain nerve-tracts are still somewhat indefinite ; this hypothesis, and the extent of the influence of syphilis in such cases as the hereditary ataxies and muscular dystrophies, are largely matters of clinical impression and speculation. Whether syphilis is responsible to a recognisable extent for mental enfeeblement and retarded development, without obvious evidence of mental disease, is a problem which can only be solved by the widest application of the biological test to parents and to families of recognised syphilitics.

An examination of the material in Woodilee Mental Hospital which has a bearing on the subject has shown some interesting results. (In the experiments the original Wassermann method was employed, and in the majority of the tests controls were made by the lecithin-cholesterin method of Browning, Cruickshank, and Mackenzie. With regard to the significance of the reaction, it may be stated that a positive result may mean either that the specific syphilitic process is still in being, or that, as suggested by Browning and Mackenzie, the metabolic changes characteristic of syphilis have been revived out of abeyance by some intercurrent malady.) That mental disease can occur, however, without the presence of a Wassermann reaction in cases which have previously suffered from syphilis

has been proved by the examination of three recent cases : A case of suicidal depression had marked evidence of a severe syphilis contracted eight years previously, but had a negative Wassermann reaction. A case of severe toxic stupor had a history of syphilis, and showed syphilitic aortitis at *post-mortem* examination, and had a negative Wassermann reaction. A case of dementia præcox had a history of syphilis, and showed syphilitic scars, but had a negative Wassermann reaction.

The cases examined were all mentally defective from birth. A few presented signs of congenital syphilis, but, in the majority, these signs were absent. A few were the subject of epileptic fits, and some were paralysed. Those cases that presented signs of congenital syphilis all gave a positive Wassermann reaction. Family histories were not taken into account, as in the majority of cases they could not be obtained.

Idiots and Imbeciles.

CASE 1.—B. R—, male, æt. 28. Is dull, listless, and stupid. Shows physical stigmata of degeneration. Is stunted in growth. Head is large and markedly asymmetrical, showing frontal bosses. Upper incisor teeth are absent. Palate is high and narrow. Eyes show blepharitis. Internal strabismus in right eye. Positive reaction.

CASE 2.—J. D—, male, æt. 15. Is quite idiotic in manner and appearance. Is poorly developed. Has well-marked frontal bosses and a flat, ill-developed bridge to nose. Has right external strabismus. Enlarged glands in anterior cervical region. Positive reaction.

CASE 3.—S. V—, female, æt. 10. Mother was an epileptic. Is fairly well developed. Has internal strabismus of right eye. Negative reaction.

CASE 4.—E. M—, female, æt. 19. Has never exhibited any intelligence, and cannot take care of herself. Is poorly developed. Stereotyped movements. Has frontal bosses. Teeth are pegged. Palate is broad and flat. Has broad, ill-developed bridge to nose. Positive reaction.

CASE 5.—J. McL—, æt. 16. Imbecile. Is fairly well developed, and well nourished. Several scars are present on face, but probably from falls. Right pupil is the larger. Internal

strabismus. There is marked bony deformity of chest. Positive reaction.

CASE 6.—H. M—, æt. 17. Imbecile from birth. Three brothers died in childhood, causes unknown, at twenty-four hours after birth, nine months, and two-and-a-half years respectively. Has frontal bosses, broad, flat nose and scars at angle of mouth. Hutchinson's teeth are present. Is stunted in growth. Positive reaction.

CASE 7.—M. A—, æt. 22. Is a higher grade imbecile. Has tubercular glands in neck. Negative reaction.

CASE 8.—R. W—, æt. 25. Hair is rough and dry. Is well nourished, but stunted in growth. Has well-marked genu valgum. Has frontal bosses. Blepharitis of both eyes. Nose is flattened. Slight scar at one angle of mouth, but not radiating. Has high palate with central ridge. Positive reaction.

CASE 9.—W. T—, æt. 32. Is a deaf-mute. One sister died in infancy. One cousin is deaf, another is blind. Has broad, flat cranium, but occipital region is raised from the general contour. Incisor teeth are lost. No signs of congenital syphilis. Positive reaction.

CASE 10.—J. L—, male, æt. 18. Has been mentally defective from birth. Is small and stunted in growth and shows stigmata of degeneration. Strabismus of right eye. External genitals are rudimentary. Positive reaction.

CASE 11.—B. S—, female, æt. 19. Mentally defective from birth. Is a large, stoutly built girl, with no deformities. Negative reaction.

CASE 12.—M. B—, æt. 14. Is small and stunted in growth and shows deformity of lower limbs. There are no signs of congenital syphilis. Negative reaction.

CASE 13.—M. H—, age uncertain. Shows numerous stigmata of degeneration. Negative reaction.

CASE 14.—G. W—, age uncertain. Has never shown any intelligence and cannot attend to her simplest wants. Has marked bony deformities. Negative reaction.

Juvenile General Paralysis (2).

CASE 15.—M. B—, female, æt. 8. Has illness extending over three months. This child had been at school, and was

considered by her mother to be ordinarily intelligent. No history of syphilis in family, although the father was a habitual drunkard and a social wastrel. On examination, the child was found to be well nourished and developed; her mother said that during the previous three months she had grown very stout. The pupils reacted sluggishly to light. The knee-jerks were absent. There was a fine tremor of the lips, and difficulty in pronunciation. She was very emotional, and wept on the slightest provocation. She was dirty in her habits. Both the blood and the cerebro-spinal fluid gave a positive reaction.

CASE 16.—A. C—, female, æt. 13. She was quite healthy, according to her mother's story, until six months before coming into hospital. She had, however, in that period lost interest in her work. She became deaf in one ear, and developed a keratitis in one eye. She was, on examination, found to be depressed, although there was said to be at times emotional disturbance. The pupils reacted sluggishly to light, and the knee-jerk was absent on one side. Two members of the family died in infancy from unknown causes, and there were two premature births. There was no other evidence suggestive of syphilis in the family. In this case both the blood and cerebro-spinal fluid gave a positive reaction.

Epileptic Idiots (3, 1 positive).

CASE 17.—M. G—, female, æt. 23. Has been mentally defective from birth and is the subject of epilepsy. She is dumb. Has marked bony deformities of lower limbs. Negative reaction.

CASE 18.—J. S—, female, æt. 15. Has been mentally defective from birth and is the subject of epilepsy. The incisor teeth are pegged. Palate is high and narrow. Nose is broad and flat. Knee-jerks are exaggerated. Positive reaction.

CASE 19.—R. E—, æt. 20. Epileptic idiot. Has numerous stigmata of degeneration. Spastic gait. Negative reaction.

Paralytic Idiots (3, all negative).

CASE 20.—L. M—, age unknown. Has never shown any

intelligence, and is paralysed in both lower limbs. Negative reaction.

CASE 21.—A. P—, æt. 27. Is an idiot who is subject to fits of violence. Both lower limbs are paralysed. Has choreic movement of the upper limbs. Negative reaction.

CASE 22.—C. L—, æt. 8. Has never exhibited any intelligence. Is sickly looking and poorly developed, and is paralysed in both lower limbs. Has an internal strabismus of right eye. Negative reaction.

Examination of Family.

A whole family, the father of which suffered from general paralysis, was examined. The father acknowledged syphilis, and his serum gave a positive reaction. The mother, to her knowledge, had never had the symptoms of primary or secondary syphilis, but eight years after marriage had a tertiary ulcer on the left leg. There were ten pregnancies; two children were prematurely born, and two died in infancy. The blood-sera of the remaining six were examined.

The eldest, a boy of sixteen, was described by his mother as very nervous and stupid as a schoolboy; his serum reacted positively, although he showed no signs of syphilis; a girl of twelve was deaf in one ear, but otherwise normal; her serum was also positive. A girl of ten had a negative serum; a boy of eight, with rhinitis and conjunctivitis, had a positive reaction; and the two youngest children, of six and four respectively, had negative sera.

The interesting fact emerges that children who suffer from mental diseases of congenital origin, but show no other sign of syphilis, may show a positive reaction; and children whose parents are syphilitic may have a positive reaction, although at the time of examination they may appear to be in ordinary health, and show no signs of previous disease.

The significance of the results which have been detailed is that syphilis plays a larger part in congenital mental affection than is generally supposed. It is important, both for the classification of mental diseases and for the elucidation of the ætiological bases of such maladies, that the serum reaction should be determined over a large series of cases. It would appear that the terms "racial degeneration" or "stigmata

of degeneration" when applied to cases of congenital mental disease may convey a false impression, especially when such cases are of syphilitic origin, and are due to specific infection of the individual. Congenital syphilis outside the nervous system produces degeneration only in the sense that an infection leads to destruction of structural elements. In the same way, it is not too much to say that nervous disease associated with congenital syphilis is the expression of anatomical changes that are due to an intra-uterine infection with the *Spirochæta pallida*. The changes which such degeneration produces in a primarily plastic brain are likely to be permanent and hopeless from the point of view of individual therapy. If medical science is prepared to urge prophylactic measures for the prevention of such diseases, it is well that it should be definitely established and recognised that a considerable proportion of cases of congenital mental deficiency is infectious in origin, and that the infection is syphilis.

(¹) Paper read at the meeting of the Scottish Division at Glasgow, March 17th, 1911.

The Treatment of Puerperal Insanity with Anti-streptococcic Serum.(¹) By NATHAN RAW, M.D., M.R.C.P.Lond., Physician, Mill Road Infirmary, Liverpool.

A CASE of puerperal insanity, although distressing in its symptoms, is always welcomed by the asylum physician, for the reason that he knows in all probability the patient will make a good recovery.

On the other hand, a case of puerperal septicæmia is dreaded by the practitioner, not only because it is a reflection on the part of someone in attendance on the woman, but on account of the unfavourable prognosis of the case.

It is very uncommon to find a true case of puerperal septicæmia associated with an acute form of puerperal insanity, and I have made observations during the last six years and find that out of thirty-one cases of puerperal septicæmia only three of them presented mental symptoms requiring certification. It is quite true that in many cases of septicæmia the patient suffers from insomnia and restlessness with occasional

fits of depression, but the general rule is one of complete mental clearness, even to the end in fatal cases.

It has been suggested by many writers that puerperal insanity was simply an evidence of toxic poisoning from absorption at the time of delivery, and that the products of decomposition or of septic infection were introduced into the blood and thence into the nervous system, producing a series of symptoms analogous to a true insanity. The evidence, however, which I have been able to lay before you does not support that view, as in the cases of twenty-eight patients who suffered from severe septic poisoning no mental symptoms were associated.

We cannot, however, say that septic absorption never produces insanity, and it may well be that in a certain percentage of cases (undoubtedly small) a general septicæmia may actually induce all the symptoms of acute puerperal mania, which disappears or passes off when the septic mischief is removed. I have seen the most violent mania, associated with hallucinations of vision and hearing, follow the application of two belladonna plasters to the breasts of a recently delivered woman.

These acute symptoms passed off as quickly as they had come on removal of the belladonna. Acute mania in varying degree will sometimes follow the use of atropine in the eyes, a characteristic feature being hallucinations of vision, smell, and hearing, with, in some cases, illusions of vision.

When we are called upon to deal with a patient in whom puerperal septicæmia is associated with insanity we have, indeed, a great responsibility.

The necessary local treatment in the way of douching, removal of *débris* from the uterus, attending to local lacerations, etc., is all resisted by the patient—being insane—and without a general anæsthetic little can be done, whilst, on the other hand, the best treatment for the insanity cannot be carried out on account of the serious bodily illness.

In the cases of the three women which I will briefly mention, the line of treatment on which the greatest stress was laid was that by injections of anti-streptococcic serum, associated, of course, with necessary local treatment. In all the three cases there was a bad family history of insanity, which, to my mind, is the most important predisposing factor in the production of puerperal insanity.

The anti-streptococcic serum used was a polyvalent one, composed of over twenty-six strains of streptococci. The dose was 20 c.c. morning and evening, injected under the skin of the abdomen.

My usual practice is to inject the serum into the rectum with a little normal saline solution, but in the case of insane patients this is not possible.

CASE 1.—A young woman, æt. 23, strong and healthy, was admitted to hospital five days after delivery of a male child. The labour was difficult. Primipara; forceps used. Three days afterwards she developed symptoms of fever, associated almost simultaneously with excitement, hallucinations, and refusal of food. Her mother was insane. Her temperature was 105° F., pulse 140; marked insomnia.

Nothing was found in the uterus, but the perinæum was lacerated, and there was some offensive discharge.

She was treated with 20 c.c. of serum each morning and evening, together with a general line of sustaining and nourishing treatment, and in the course of a few days her temperature fell, and her symptoms of acute septicæmia subsided, and she soon had a normal temperature and pulse.

The mental symptoms, however, did not show a corresponding improvement, and she had ultimately to be removed to an asylum, where she made a complete recovery in three and a half months, and went home.

CASE 2.—A woman, æt. 27, primipara, sister insane, was admitted to hospital in a state of wild delirious mania and acute symptoms of septic intoxication. She had been delivered eight days before by a midwife of a living child (easy labour). Two days after delivery she showed signs of septic infection, and the uterus was cleared out of some *débris*.

The discharge was most offensive and she was seriously ill.

On the seventh day after delivery she became unmanageable, laughing, singing, and shouting to imaginary persons, and refusing all food.

The mental symptoms became alarming and she passed into a state of acute delirious mania, with profound exhaustion. She was treated with chloral and bromide, which had a quietening effect for a time, and 20 c.c. of serum was given twice each day.

Very soon her septic condition began to improve, the dis-

charge ceased, and her temperature and pulse fell to normal. Not so, however, her mental symptoms.

She was removed to an asylum, and I am glad to say made a complete recovery in four months and went home. She has since had two children without any return of her mental trouble.

CASE 3.—A primipara, æt. 26, was admitted into hospital twelve days after delivery of a living child. Father insane.

Puerperal septicæmia developed three days after delivery, during which there was extensive laceration of the perinæum and vagina.

Mental symptoms developed seven days after delivery and were much of the same character as in Case 1. Anti-streptococcic serum was given morning and evening and combined with local treatment, with the result that the septic infection subsided gradually. In this case the mental symptoms completely passed off at the same time as the septicæmia subsided, and we thought we had achieved a great triumph. She became quite rational and appeared to have quite recovered, both bodily and mentally, when, in conversation with her husband, she suddenly became collapsed, and in spite of restoratives died from syncope. Whether or not the improvement in the mental symptoms was due to the serum or was simply a coincidence I cannot be sure, but the serum certainly seemed to have a most beneficial effect.

Conclusions.

(1) Puerperal insanity is only rarely, if ever caused by septic infection at the puerperal period.

(2) Anti-streptococcic serum of a polyvalent nature seems to exert a very favourable influence in many cases of puerperal infection, but does not appear to influence the course of the mental process.

(3) Puerperal insanity, of whatever variety, is most favourable for cure in a properly equipped mental hospital, provided that the treatment is undertaken immediately after its onset.

(¹) Paper read at the Quarterly Meeting on May 23rd, 1911.

Occasional Notes.

The Study of Man.

Pope long ago enunciated the doctrine that "the proper study of mankind is man," and although this has not been ignored completely, it has not been placed in the forefront of human activities, as Pope's luminous intelligence indicated.

Dr. Arthur MacDonald has recently advocated the formation in every country and district of laboratories for the study of social defectives of all kinds, and a Bill to effect this object has been before the House of Representatives in Washington. As yet, however, this has not become law, although endorsed by the approval of many medical, legal, and religious associations throughout America.

There can be no doubt that studies and careful records of the abnormal physical characters and of the unfavourable social environments of the defective classes, whether insane, criminal, immoral, or pauper, would give valuable information which would greatly help to the knowledge of means to prevent the development of these failures. It must, however, be recognised that these social defectives are merely results—end-products—of very complex social conditions, and that, valuable as such study is, it is less important than the knowledge of the conditions out of which such results have developed. These unfavourable conditions, to a very great extent, are those which obtain during the first five years of life, when children are most completely exposed to the ignorance and mismanagement of their parents.

The frightful mortality of children in the first year of life, the result, as inquiry has shown, of the most terrible ignorance, is an evidence of the amount of injury inflicted on those who survive; but evils, similar and equally injurious, are suffered during the next few years of life. During this period the predisposition to some form of social failure is already formed before the child comes under the observation of the state school.

Humanitarianism, however, has so concerned itself with the end-products of our defective civilisation, that these will long continue to absorb and attract attention, to the neglect of the

more vital matters. The study of these social failures is, however, of great importance for their own welfare and for the light, however dim, which they may cast on the true nature of their origin, and it is the manifest duty of every state to derive as much knowledge as it can from the scientific study of its defectives. In relation to insanity this is already done to a very great extent, although there is still scope for very considerable improvement. In regard to criminals, paupers, etc., very little has been done, and the problem how these should be dealt with and the results co-ordinated is an open one.

The foundation of district laboratories for the study of the whole of these classes would probably be the best solution, but the hope of such institutions being established is indeed faint in a country hag-ridden by the spirit of party.

The National Insurance Bill.

The National Insurance Bill, although not directly affecting the members of the Medico-Psychological Association as medical men, is necessarily of interest in many aspects, but more particularly in regard to its probable effect on national morality, which in its turn must of necessity have an important influence in the national mental health.

The article in the *Zeitschrift für Politik*, by Herr Friedenberg, on "The Practice of German Labour Insurance," is of great interest and value from this point of view.

Privy Councillor Herr Friedenberg, the writer of this article, has lately retired from the position of President of the Senate of the Imperial Insurance office, after twenty years of service in this state department. His conclusions are, briefly stated, that this system has not only failed to fulfil its specific aims, but has proved a costly and inefficient failure, and has spread all over Germany the poison of popular demoralisation. State insurance he describes as a monstrous fosterer of fraud. "Parasitical lawyers," developed as a class by the system, invent baseless claims, provincial doctors are boycotted and ruined if they refuse to back them with false evidence, and the most astonishing untruths and sophisms are sworn to by the workmen claimants. These latter artificially aggravate trifling

injuries, and "a frightful proportion will not allow themselves to be healed."

The news of a new success in defrauding the funds spreads "with the speed of the wind" throughout the empire, and everyone who can plausibly make the same claim sets to work to prepare his case.

The result has been a great increase of bureaucracy, all the best voluntary workers having retired in disgust. The judicial assessors, for example, have increased from four to ninety-nine. The costs of administration have risen 50 *per cent.* since 1888 and the risks "are not actuarially secure." This latter condition, it may be imagined, implies that sooner or later the empire will be called to make good the wasted and squandered insurance funds.

In the unanimous adoption by all parties in this country of the imitation of the German system in Mr. George's Bill, it seems desirable that the views expressed by such an eminent authority as Herr Friedenberg should be widely known, and this is the reason for introducing the subject in this Journal.

The Imperial Insurance Office, it is well to remember, must of necessity be impressed by the vast amount of popular demoralisation brought to its notice, and may consequently appreciate less the advantageous sides of the Bill.

The evils so voluminously illustrated by Herr Friedenberg, however, under an increasingly bureaucratic administration, must obviously be much greater than under the voluntary system that at present exists in England. In the latter every member of a friendly society is a check on every other: under the bureaucratic plan, it would appear to be to the interest of every insured person to assist every other in defrauding the insurance fund.

The voluntary system, which does so much to develop, should not be lightly abandoned in favour of one that is destructive of, character. This is a greater peril than the danger of invasion, and should be equally strenuously combated.

Dr. Maudsley and Conolly Dell.

Our readers will be interested to hear that, thanks to the liberality of Dr. Maudsley, the vicinity of Hanwell is endowed

with an open space to be called Conolly Dell, the ground of which has not only been given, but suitably laid out and equipped.

The land constituted part of the grounds of the private asylum (The Lawn) which was conducted by Conolly, and can be seen from the Great Western Railway, and is a pleasant resting-place for the eye from the rather uninteresting streets adjoining it.

It is also of interest to know that at length a site has been obtained by the London County Council for the erection of the hospital for the treatment of mental cases, for which Dr. Maudsley offered the sum of £40,000 some years ago.

The Asylum Workers' Association.

The annual meeting of the above association, under the presidency of Sir W. J. Collins, was held on May 24th last at 11, Chandos Street, Cavendish Square.

The President drew attention to the great increase in the number of members from 3025 in 1908 to 5276 in 1910. He congratulated the Association on the passing of the Pensions Act, and he referred to the Bill now before Parliament for amending this Act and for limiting the hours of employment.

The statement of accounts shows that the funds of the association are in a satisfactory condition, although it is to be regretted that the Homes of Rest Fund has rather diminished than increased during the past year.

Dr. Nolan's report of the formation of an Irish Branch of the Association was received with much satisfaction, and there was marked evidence of the continued zeal and ability which the Executive Committee exhibits in considering the welfare of asylum workers.

Many expressions of regret were evoked by the absence of Dr. Shuttleworth through indisposition, and there was renewed recognition of his invaluable services.

A cordial vote of thanks was accorded to Sir William Collins, who was unanimously elected President for the ensuing year.

Part II.—Reviews and Notices.

The Laws of Heredity. By G. ARCHDALL REID, M.B., F.R.S.E.
London: Methuen and Co., 1910. Demy 8vo, pp. 548. Price
21s. net.

This is a book written by an author who describes himself as "a very extreme Darwinian," and as such is an adherent of Darwin's theory of natural selection. He first deals with the characters of living beings and the method of development, and is strongly of opinion that individual development is a recapitulation of the life-history with additions and subtractions. That species arose and were adapted to their environments may be due, he says, to miracle or to natural processes. If species arose by miracle, according to the author, three methods of creation are conceivable. He considers these one by one, and rejects them all. There is, however, something to be said in favour of his third conception, *viz.*, that there may have been evolution, but evolution miraculously directed. Some men of science hold that species are fitted to their environments in consequence of an inherent adaptive growth-force, and that the offspring "tend to vary from their parents in such a way as to be better fitted to the environment, and that thus evolution results." He rejects this theory, and goes on to consider the Lamarckian doctrine, *viz.*, that parental acquirements tend to be inherited by the offspring. Naturally, as a strict Darwinian, the Lamarckian theory does not satisfy him. In his chapter on "variability" he mentions that statistics have been published by medical men proving that persons suffering from disease and intemperance often have degenerate, or physically or mentally defective children, and that these defects have been assumed to be innate and due to the ill-health of the parent. This evidence he attempts to disprove, by stating that healthy and temperate people have defective offspring, and that people who are diseased and intemperate often have normal children. The author is evidently unaware of the statistics of Dr. Potts, who investigated the history of 250 mentally defective children, and also as a control the family histories of 100 normal children of the same age and in the same district, the result being that mental defectiveness was far more common in the children of the former than in the latter class of parents. The author accepts Weissmann's theory of the continuity of the germ-plasm. Weissmann's theory "supposes that the germ-plasm is not formed afresh in every germ-cell, but by means of cell divisions is handed by germ-cells to descendant germ-cells." Sir Francis Galton's "Law of ancestral inheritance" is examined, but the author does not accept it, and says that the idea that ancestors contribute to the heritage of the child is founded on, but not tested by, facts. As he does not agree with the law of ancestral inheritance, so he thinks that the biometric system, though excellent in itself, is very slow and laborious. Biometricians, he says, have endeavoured to demonstrate that human mental ability and powers of resisting disease are inheritable, and that individual degrees of fertility in men and horses tend to be transmissible.

The results that have been arrived at are, according to the author, inferences from facts which are left isolated and untested.

Next the Mendelian theory is examined, and two possible explanations of Mendelian phenomena are given. First, there is "the orthodox Mendelian doctrine of dominance (patency and latency) in the first hybrid generation, and segregation and gametic purity in the pure dominants and recessives of succeeding generations." Secondly, there is "the theory of temporary patency and latency in the first generation, and more perfect and permanent patency and latency in the pure dominants of succeeding generations." The first theory, the author says, is contradicted by certain facts which he relates, but there is nothing in Mendelian literature which contradicts the second theory. In any case, however, there is no doubt that the Mendelian phenomena do occur. Lastly, the author refers to the mutation theory, and rejects this hypothesis mainly on the ground that the idea that evolution depends solely on mutations cannot be founded on experiment.

The author then proceeds to study human beings, and is of opinion that the greater problems of heredity will be solved by this study. Human diseases, acquired immunity, acute and chronic diseases, epidemic and endemic diseases are examined, with the result that "disease is the only factor of selective elimination sufficiently stringent among civilised men to be a cause of progressive evolution." The action of alcohol on the human organism occupies two chapters of the book, and the author propounds the rather startling statement that "every race is resistant (*i.e.*, temperate) in the presence of alcohol in proportion to the length and severity of its past experience of the poison." The author does not believe that physical deterioration is due to the direct effect on the germ-plasm of insufficient food, bad hygiene, disease and alcoholism, or that the rarity of families of urban descent is due to germinal deterioration, and with reference to this matter he considers the case of the Jews. He says that "while Jewish mothers in the slums are . . . noticeably more healthy and temperate, and therefore better able to rear and suckle children than English women in the same surroundings, neither they nor their children are appreciably cleaner, nor are their dwellings better than those of the natives." That the children are no cleaner than those of the natives is a statement which is directly contrary to the facts of the case. It was shown some years ago by an examination of a similar number of Jewish children and children of the non-Jewish faith brought up in the same part of Liverpool, that the Jewish children were better clad, better fed, and cleaner than a corresponding number of non-Jewish children.

The report of the Royal Commission on the Care and Control of the Feeble-Minded is referred to, and the definitions of the Royal College of Physicians of idiots, imbeciles, feeble-minded, and moral imbeciles are given, as well as the definitions of these classes by Sir James Crichton-Browne and Sir E. Ray Lankester. The conclusions of the Commissioners are given; while they are of opinion that it would be unwise to alter the law with respect to marriage of persons of unsound mind, legislative prohibition should be enforced preventing the marriage of congenital and incurable forms of mental defect.

The book concludes with a chapter on education. An appendix is added, being a novel attempt, by Herbert Hull Turner, Savilian Professor of Astronomy, Oxford, to represent diagrammatically some of the ideas connected with inheritance.

Though we do not agree with all the conclusions of the author, the book is worthy of notice, and should be read by all who are interested in the study of heredity.

FLETCHER BEACH.

L'Aliéné, l'Asile, l'Infirmier. Par Th. SIMON, Medecin-adjoint des Asiles publics d'Aliénés, etc. Paris: Librairie O. Berthier, 1911. Pp. 406. Price 4 fr.

This little book has much to recommend it. It can be put into the hands of a new nurse or attendant, and would serve as a help and a guide, and at the same time it contains a full account of mental nursing with a simple division of cases, and a simple psychological explanation of the various features of the main types of insanity. There is no classification of insanity, and no chapter on psychology, but probably it contains all that a nurse needs to know. It is very up-to-date in its methods as a rule, though the chapter on restraint shows it to be written for those who are less used to modern methods than the English nurse. There is a full account of the procedure on admission, the special dangers and care of the suicidal, epileptics, etc. Much stress is laid throughout on the duties of the nurse, and the value of personal attention to details. We quote one passage on the care of epileptics: "At night time a patient may turn over, his face buried in the pillow; death has occurred from this; consciousness may be slow in returning or the fits may be in succession, a condition known as 'status epilepticus.' It might be possible to avoid asphyxia by perforated pillows; injuries may occur from falling out of bed, and both these and suffocation have been sought to be prevented by tying the patient so that he cannot turn over on his face after a fall. But after all there is one safeguard better than all the others, namely, your presence and help."

General nursing finds a place at the end of the book, and important symptoms are recorded, and what they may mean. Detailed information is given with regard to the dressings, catheters, etc., and a list of common antidotes of ordinary poisons.

The importance of observation and recording these observations is well explained.

There is, fortunately, no minute anatomy and advanced physiology.

M. A. COLLINS.

Part III.—Epitome.

Progress of Psychiatry in 1910.

AMERICA.

By Dr. WILLIAM McDONALD.

AN account of the work in America should be a record of facts, whereas space is lacking for the barest catalogue of even more important developments in all the different states of the Union. Moreover, the writer can lay claim to no more than a limited knowledge of what has been accomplished. The annual letter can do little more than give an individual opinion of the general trend in our work. It may be regarded as scarcely more than a budget of the latest psychiatric gossip. Not being in possession of all the facts in regard to the matters herein discussed, I beg to submit the following extracts from my mental diary of events judged from my own standpoint, of which I can hardly say more than—

“O, this I have felt, and this I have guessed, and this I have heard men say,
And this they wrote that another man wrote of a carl in Norrøway.”

Perhaps the most talked-of subject is so-called “psycho-analysis,” a term which has been appropriated by certain students and applied to a limited field of psycho-pathological research. The debate reveals a large number of adherents to the teachings of Freud, though the rumblings of dissent that were heard a year ago have now reached the intensity of a storm which has broken upon the heads of the American disciples.

Jones, Putnam and Brill have contributed prominently in support of Freud's conceptions, while Morton Prince, preserving the individuality of his own somewhat similar theories, has furnished sympathetic critical elucidations of the views of Jung and Freud. Trigant Burrow in the *American Journal of the Medical Sciences* predicts “that Freud's teaching, vigorously furthered by the researches of Jung and the Zürich school, is destined for a leading rôle in the future development of psychopathology.”

On the other hand, outraged decency and sober common-sense, revolting from the lurid eroticism and totally illogical imagery of the more fervid Freudians, have expressed themselves in caustic denunciation.

Especially have the writings of Ernest Jones brought down the wrath of the heretics upon the head of this self-appointed and altogether arbitrary high-priest of the psycho-analytic cult in America.

And when Jones in his latest unholy effusion, *The so-called Œdipus Complex in Hamlet*, quotes with approval Freud's dictum that “the mother is the first seductress of her boy,” Dr. James Hendrie Lloyd enters the arena and administers a stinging rebuke to what he terms “subterranean psychology.”

In the *Journal of the American Medical Association* of May 13th, 1911, Dr. Lloyd tersely sums up the situation when he says—“The

emphasis laid on sexual ideas by Ernest Jones in his paper is highly characteristic of the whole Freudian school. They seem absolutely obsessed with ideas of sex. They cannot get their minds out of this channel; and it would be an interesting test of the value of their own psycho-analytic methods for somebody to turn their guns on themselves and see to what repressed sexual emotions in their own subliminal strata is due this over-emphasis of a somewhat forbidden subject. Can it be that the whole Freudian phenomenon is a form of sexual neurasthenia breaking out among a class of idealistic men and women with a tendency to scribble?"

Judging from the latest manifestations of Freudian energy it would appear to be the better part of wisdom not to take too seriously the outbreaks of the modern psycho-analytic propaganda; better far to furnish them the necessary amount of rope and then calmly await the logical termination of the illogical psychiatric holy-rollers.

A more practical development may be seen in the application of *serum tests* and *cyto-diagnosis* as aids in the study of certain mental diseases. A year ago it was difficult and expensive except in a few localities to obtain the benefit of such tests as those of Wassermann or Noguchi. Now most of the large general hospitals are using one or both tests, and many of the hospitals for the insane are systematically investigating the reactions of the blood and cerebro-spinal fluid of the patients.

This work must of necessity in the course of time enlarge greatly our knowledge of general paresis and syphilitic mental diseases, and through earlier diagnosis lead to better and more thorough treatment.

Ehrlich's salvarsan is now being used throughout the country, but largely in an experimental way only, and the data as yet are insufficient to determine its degree of usefulness in syphilitic affections of the nervous system.

The *continuous bath* has, of course, been used in many institutions in America, and a few years ago was frequently the subject of enthusiastic discussion. It is interesting to note that once again there is widespread favourable mention of this valuable therapeutic agent.

By far the most significant medical movement in America is one which has for its object the relief of mental, moral and physical needs of impecunious patients, or of those in danger of becoming penniless, outside of hospital wards and dispensaries. In other words, there is a country-wide effort to lighten the burden of charitable institutions by so educating the masses in matters of health as to minimise the danger that they may become public charges, or that they may remain such after having once been cared for at the public cost.

The work is somewhat on a par with the schemes for *State Insurance* in Great Britain and Germany, one of the provisions of which, in Great Britain at least, is the establishment of county health boards, whose duty it will be to improve the sanitary conditions in their districts, and to institute a campaign of education of the people in matters of health and hygiene.

In America two distinct lines of action are being followed. On the one hand, the State boards of health are issuing pamphlets for general distribution and instituting free lectures which teach moral and

physical purity. The sacredness of the family tie and the nature of the consequences of sexual sin are explained—it is to be hoped with care and tact—to those supposedly more or less ignorant on these topics.

The result of such teaching should be a diminution in the percentage of syphilitic, mental and physical diseases.

On the other hand, the *Hospital Social Service or Follow-up Work*, established in 1905 at Bellevue Hospital under the inspiration of Dr. Richard C. Cabat, has matured and prospered until, in the words of Robert W. Bruère, whose article in *Harper's Magazine* of June, 1911, gives interesting details, "by adding a social vision to the highly specialised wisdom of the medical profession, it promises to increase an hundredfold the efficiency of public hospitals and dispensaries as instruments of human conservation."

As to legislation and State investigation, the country is having more than its fill.

In New York State "the report of the commissioners designated some time ago by Governor Dix to investigate the management of State prisons and reformatories with special reference to affairs at Matteawan was made public on May 14th. Because of the numerous allegations that sane persons are confined at Matteawan the investigators engaged the services of several experts to inquire into the character and discipline of the hospital and into the mental condition of the inmates. As a result of their findings, the commissioners report that no sane persons are being detained there, and that the charges of cruel treatment of the inmates are absolutely without foundation. Recommendation is made, however, that the prison characteristics of the institution be changed and Matteawan be placed on a more distinctly hospital basis, that its more capable patients be regularly employed, and that the State Lunacy Commission have complete control over it."

In Massachusetts an act is now before the Legislature to prohibit certain forms of mechanical and chemical restraint on inmates of penal institutions and on patients in public or private sanatoriums.

Though theoretically any measure which has a tendency to discourage the use of unnecessary restraint would seem worthy of support, practically the proposed legislation has served only to inflame the yellow journals and alarm the community over abuses which scarcely exist, and has antagonised hospital physicians, who consider that it is not for a Legislature to arrogate to itself medical functions and dictate ways and means of medical practice. It would be every bit as reasonable for the Legislature to presume to prohibit the use of the surgical splint which happened to be considered archaic by more enlightened or other minded practitioners.

Dr. John B. Chapin, the medical superintendent of the Pennsylvania Hospital for the Insane, and an honorary member of the Medico-Psychological Association of Great Britain and Ireland, has resigned his office, the resignation to take place at the pleasure of the board of managers.

After fifty-seven years of service as an alienist he retires with a record which fairly earns for him the title of the Nestor of American psychiatry.

Dr. Owen Copp, Secretary and Executive Officer of Massachusetts State Board of Insanity, has been appointed to succeed Dr. Chapin.

DENMARK.

By DR. A. FRIIS.

THE demand for more accommodation in the State asylums has again been the order of the day here in Denmark, as the enlargement of the Viborg Asylum—mentioned in my retrospect of 1906—gave only a transitory relief. In consequence of this a commission was appointed, which gave a report in 1910. From their report it is seen that at present there is accommodation for about 4,300 patients in all the Danish asylums (State and municipal), while by inquiries through medical and other authorities it was ascertained that about 1,100 insane were living outside asylums all over the country (Copenhagen not included). The whole number of patients with well-marked insanity in Denmark may therefore be regarded as about 6,000. A certain number of those 1,100 of course can live outside the asylums without great inconvenience, and therefore it will only be necessary to provide additional accommodation for 1,000 patients—in all 5,300, or 0.2 *per cent.* of the whole population—to meet the demands for treatment in the near future.

From the statistics in the report it is seen that in the State Asylums there has, during the last thirty years, been a little over 12,000 admissions, and of those patients 34.24 *per cent.* have been discharged as recovered, and 17.5 *per cent.* as improved; incurable were 17.5 *per cent.*, and 24.1 *per cent.* died.

A bill will accordingly be forthwith promoted for the erection of an asylum for 600 patients, which can be enlarged to accommodate 800, on the island Sjaelland. This establishment will be built on the colony system, and be managed in accordance with the most modern ideas. Combined with it is planned a special establishment for the admission of 50 dangerous criminal lunatics; a similar number is at present confined in the general asylums.

The boarding-out of the insane has commenced here, but for the present only in connection with two asylums—Middelfart and Aarhus. The results have hitherto been very encouraging. The system adopted is different in the two asylums. At Middelfart the patients are boarded out in the neighbourhood, and under the immediate supervision of the physicians of the asylum; at Aarhus, on the contrary, they are boarded out in a more rural district, somewhat remote, and under the care of the practitioners of the district, with supervision by the medical superintendent of the asylum. In both cases the patients can, if needed, immediately be sent back to the asylum. The hosts belong to the artisan class.

The nursing question has also been discussed, and in recent years a great deal has been done to improve the class of nurses, both by

providing better conditions of life for them, and by giving them instruction, theoretical and practical, in nursing.

In the asylums for the feeble-minded, also, there is a steadily increasing lack of accommodation. A new asylum for 200 of the most helpless class of criminals was opened in 1907 at Ribe in Jutland, but the relief this provided has been only temporary. From the Keller asylums it is intended to establish a small institution for especially difficult imbeciles on a little island otherwise uninhabited.

As to the care of the epileptics, there is nothing new to mention. The older, private establishments have been somewhat enlarged, but no new ones have been built.

A lunacy act is still wanted here. When the Royal College of Health in 1909 was supplanted by the Directors of Health, it was determined by statute that there should be a more effective supervision of the hospitals and asylums for the insane than formerly; and especially that the psychiatric adviser of the Direction should partake in this supervision, and the asylums should at all times be open to the members of the Direction.

Since my last retrospect we have had to regret the death of Dr. Fr. Lange, the noted Director of the Middelfart Asylum, who died suddenly, December, 1907, of heart-disease. His successor is Dr. A. Helweg, formerly medical assistant at the same asylum.

Of scientific work in the different branches of psychiatry there has been a good amount accomplished in the last few years. Of books and essays published at home and in foreign periodicals I shall here mention the most prominent.

Prof. Friedenreich, Medical Superintendent at the Neuro-psychiatric Section of the Kommunehospital in Copenhagen, has in his book, *Tilregnelighed fra Lægens Stand-punkt* (Responsibility from the Physician's point of view¹) treated that old question in a new and suggestive manner. He concludes, on the whole, that it is the "social possibility" of the individual which must be the criterion of responsibility and of the necessity for punishment. If he is "socially possible" (even in a low degree) he must be punished, while on the contrary if "socially impossible" he is to be made harmless by being placed under care in an asylum.

In *Degenererede Boern* (Degenerated Children, Copenhagen, 1910) Dr. Wimmer gives an exhaustive description of all the different forms under which degeneration presents itself in children and the manner in which these patients are to be treated.

In connection herewith it should be mentioned that Dr. Wimmer and Dr. A. Friis in the *Annual Reports of the Danish Association of Criminalists*, 1910, have published the results of their investigations into the mental state of children in Danish reformatories and educational establishments, by which they have found out that about 40 per cent. of those children had some degree of mental defect.

Dr. Boas and Dr. Neve have, in *Deutsche med. Wochenschrift*, 1910, published the results of some investigations on the Wassermann reaction in dementia paralytica. In 134 cases of this disease they found a positive reaction in the blood of all the cases, but the examination of the spinal

¹ A *resumé* is published in *Monatsschrift. für Psych. und Neurologie*, 1908.

fluid yielded only 52 *per cent.* of positive results. The cause of this latter they did not know.

Drs. Boas, Thomsen, Hjorth and Leschly, from the Serum Institute of the State, have investigated the Wassermann reaction in the feeble-minded in all the Danish asylums. Of 2,061 cases of idiocy and imbecility they had positive reaction in 31 cases only, but in 5 of these the syphilis was acquired and without connection with the imbecility. In 6 other cases there was a history or symptoms of hereditary syphilis, but no Wassermann reaction. These were with positive blood reaction, while spinal fluid was positive in three cases only. The number *per cent.* (1.5) of hereditary syphilitic idiots and imbeciles found by the Wassermann reaction corresponds fairly well with that, *e.g.*, 1.2 *per cent.*, I myself have found out by clinical and ætiological investigation of about 1,000 cases.

E. Berthelsen and A. Bisgaard (from St. Hans Hospital near Copenhagen) have, in *Zeitschr. für gesammte Neurologie u. Psychiatrie*, Bd. iv, published results of objective mensuration of biological, cytological and chemical reactions in cerebro-spinal fluid, besides a description of a new chemical reaction in spinal fluid. The authors have examined the spinal fluid from seventy patients suffering from dementia paralytica as to the content of cells, phase 1, and the whole content of albumen, while the "Serum Institute" has investigated the Wassermann reaction on blood and spinal fluid from the same patients. Positive Wassermann reaction in blood was found in 98.5 *per cent.*, in spinal fluid in 73 *per cent.* of all the cases. Increased phase 1 in 100 *per cent.*, increased albumen in 95.7 *per cent.*, pleocytosis in 96 *per cent.* The curves show that there is no constant proportion between the relative strength of the various reactions. On the contrary the microscope showed a parallelism between the lymphocytosis of liquor and the infiltration of the meninges of medulla spinalis. The new chemical reaction consists in that, when to each $\frac{1}{2}$ c.cm. of the spinal fluid of a paralytic is added one drop of a solution of formalin (33 *per cent.*) and the liquor is heated to 40° for one and a half hours, the ammonium sulphate reaction will be almost quintupled and the nitric acid reaction (for the whole content of albumen) almost doubled. This is the case also in paralytics, whose content of albumen is lowered to the normal. In the spinal fluid were found three different sorts of albumen.

FRANCE.

By DR. RENÉ SEMELAIGNE.

DURING the year 1910 papers and clinical cases have been numerous and interesting. It is difficult to make a judicious selection, as nearly all are worth mentioning.

Drs. Gustave Martin and Ringenbach, of the colonial army, had an opportunity of studying, in Congo, the psychical disorders of sleeping-sickness. *Trypanosomiasis* is a generalised toxic disease with an especial action of the poison on nervous centres, and, like all the toxic diseases, it may produce cerebral disorders.

The insanity is one of mental confusion with cerebral depression, going on to stupor and sleep; actual or *retro-antegrade* amnesia, *disorientation*, hallucinatory delirium and typical katatonic states. This most typical form is frequently associated with accessory and super-added deliriums, which are changing in character and contradictory, and which include—(1) depressed melancholic varieties, (2) expansive or megalomaniacal varieties, (3) circular or maniacal-depressive varieties with a more or less regular succession of maniacal and melancholic states. One might also notice hallucinations of sight, hearing, smell and taste, fixed ideas, obsessions, and a resulting delirium more or less systematised. The principal impulses are tendencies to fugues and to dromomania. Europeans offer the same psychical disorders, but the puerile mental state of native people imparts to their delirium a childish and particular type.

Dr. Paul Sollier has recorded a case of cerebral cenæsthesia with unilateral symptoms and mental disorders. The patient, æt. 23, a professor of history, suffered, five years ago, a gastro-intestinal disturbance, with vomiting, insomnia, tinnitus and various cerebral sensations. Since that time similar attacks frequently occurred of increasing intensity, producing suicidal ideas. At the beginning of the disease there were already sensations of *depersonalisation* with unilateral cerebral sensations. In the course of the first year the patient conceived some doubts of his own personality; in the following years such sensations increased, he lost sensation of time and place and felt like an impersonal being. Psycho-sensory symptoms persisted on the right side. During the whole course of the disease buzzing in the ear synchronous with the pulse, exaltation of hearing, and slight exaggeration of smell. There were present on the right inequalities in the perception of phenomena, according as the patient was looking with one eye or the other; on the left side perception was quite normal, while on the right side visual keenness was increased and objects presented appearances of extraordinary intensity and brightness. Cenæsthetic sensations were numerous. Early in the disease, while suffering from insomnia, the patient felt that the left side of his head was falling asleep, whilst the right was excited and unable to sleep completely. He suffered also localised disorders, giving a sensation of delirium in the right side when the left was natural. The patient had sensations of modification in the size of his right brain, which seemed to be pushed from inside to outside, and to be compressed as if it was increasing in size and limited by the skull. Trephining with a partial excision of dura-mater was performed to ascertain if cerebral hypertension was present. The patient died and his family refused to permit a *post-mortem* examination. Dr. Sollier concludes as follows: (1) It is permissible to conceive the existence of a cerebral cenæsthesia, *i.e.*, an especial sensibility with perception of the psychical and, in some pathological states, of the physical working of the brain; (2) the *depersonalisation* of the patient seems to be connected with the disorders of cerebral cenæsthesia; (3) such disorders seemed to be connected with disorders of the cerebral functions, perhaps as a result of cerebral changes which may end in death by nervous inhibition.

The question of insanity as a plea for divorce recently raised by

Drs. Juquelier and Fillassier, of Paris, will be soon discussed by the Société Médico-Psychologique. A member of the Chambre des Députés, M. Maurice Violette, introduced a bill which allows incurable insanity to be pleaded as a ground of divorce; the author of the measure includes under the name of incurable insanity the disappearance, without any hope of recovery, of the intellectual and moral personality, but he does not admit senile dementia or intellectual disorders secondary to an apoplectic attack as forms of incurable insanity, and consequently as pleas for divorce.

Prof. Rémond and Dr. Voivenel, of Toulouse, have published a critical study of the views of Kraepelin on mania and melancholia; they conclude that it is impossible to admit, as a psychiatric disorder, a synthesis only founded on a paradoxical conception. Dr. Victor Parart is opposed to the view which does not regard mania and melancholia as morbid entities, but only as symptoms or simple manifestations of a more complete nosological whole. Notwithstanding some new medical theories, he proclaims his belief in the existence of two distinct types of mania—a periodic one, and another which is simple and essential, and from which complete recovery is possible.

Drs. Sérieux and Capgras described, as a variety of interpretational insanity, the *interpréteurs filiaux*, who disavow their own family and pretend to be the true progeny of a sovereign or a high personage. Such patients and the “persecuting persecuted” constitute two related but distinct groups. Persecuting persecuted might be placed in the *délire de revendication*. Such constitutional psychosis involves the *déséquilibrés*, who, labouring under an obsession or a state of maniacal exaltation, devote their intelligence and abnormal activity to the satisfaction of some morbid passion. The *persécuteurs filiaux* present all the signs of interpretational insanity, *i.e.*, (1) multiplicity and arrangement of interpretations; (2) absence or rareness of hallucinations; (3) persistency of mental activity; (4) progressive extension of the delirium; (5) incurability without any intellectual weakening. They have also a well-marked propensity to fancied stories. But a periodical conception guides the thoughts and actions of *interpréteurs filiaux*; that is an ambitious idea relating to their origin. They disclaim their real parents, and they believe themselves to be the heirs of some royal family or of a powerful personage of the state. What is the origin of such ideas? Sometimes real facts seem to contribute to their appearance, as, for instance, an irregularity of birth, a secret confinement, children nursed out of the family, etc. The systematisation of the ambition tale seems to be the result of delirious interpretation, without associated hallucinations. When a definitive interpretation is met with, various reasonings prove the evidence of an imaginary filiation; such evidence generally arises from actual observation, and especially from the experiences of past life; so the fiction is completed by a retrospective delirium. Some patients introduce into the delirium some historical events; others appeal as a testimony to some physical anomalies. Exceptionally the *interpréteurs filiaux* are satisfied with their fancies and do not go further; more generally they imagine themselves to be exposed to the underhand influence of powerful foes who have an interest in their disappearance and unmercifully seek their ruin.

Sometimes the idea of persecution precedes the ambitious conceit, but such conceit soon develops and dominates the whole delirium. Most generally the idea of persecution is a deduction from the idea of filiation. So, as in the case of a primary ambitious delirium, this secondary delirium of persecution offers a ground of erroneous interpretations without hallucinations. The patients make accusations, sometimes against their own, sometimes against imaginary parents, and often against both at the same time; they imagine themselves to be the victims of a conspiracy, the members of which are always multiplying. But if they detect enemies, they discern also imaginary and powerful defenders; they often believe that they themselves are regarded with fear. Such patients frequently present a morbid heredity with some of the characteristic signs which occur in subjects of mental degeneration, as intellectual and moral deficiencies, somnambulism, instinctive perversion, obsessions and impulsions, hypochondriacal preoccupations, misanthropy, susceptibility, periods of agitation and depression, transitory attacks of delirium, grafted on the fundamental idea. Their lives may be a tissue of eccentricities giving evidence of a morbid mental instability and of a complete want of good sense and judgment. Their sensibility is exceedingly keen and subordinates the judgment, and the morbid exaltation of imagination directly leads to *confabulation*. Morbid musing plays also an important part in the appearance of interpretational insanity, and the fancies of imagination produce a profound and durable disorder of the *affectivity*; such morbid fancies take root and rapidly increase. Ambitious ideas of imaginary parentage are not exclusively observed in interpretational insanity, and may be studied in some other psychoses, such as delirious ebriety, general paralysis, insanity of the degenerate, manic-depressive insanity, dementia præcox, chronic delirium of Magnan; but such lunatics do not present a similar appearance, and cannot be confounded with the *interpréteurs filiaux*, whose delirious conceptions are not so remarkable as are their intellectual lucidity and power. The courts of justice and historians generally insist that they are impostors or adventurers, and the plea of insanity is rarely discussed.

There is a variety of *megalomaniac filiaux*, who present a morbid constitutional tendency, more or less spontaneous and conscious, to lies and fancied stories; but they rather must be classed in *mythomaniac* than as interpretational insanity. Conviction in the *interpréteur filial* is stronger and more persistent. He is lucid, does not present any hallucinations, and might often persuade, by an appearance of strict logic, not only his friends, but even the public, who generally consider as an impossibility the combination of reason and insanity.

HOLLAND.

By Dr. F. M. COWAN.

A New Departure in Penal Legislation.

AN affair which caused immense interest in the whole country and gave rise to vehement protests was the following: On Sunday, Septem-

ber 8th, 1907, a workman, K—, living in the small borough of Papendrecht, near Dordrecht, smashed a window of the town hall. He was in company of a friend of his, Ga—. Next morning Ga— goes to the town hall, intending to tell the authorities that he had taken no part in the window-breaking. The culprit had been arrested the same evening and was placed in confinement, and declared that he had been badly ill-treated by the police. A short time afterwards Ga— left the town-hall bleeding from the nose and with a wound on the bridge of his nose. He called upon a physician, telling people he met on the road that he had been unmercifully beaten by the policemen in presence of the burgomaster. He gave the same account to the surgeon who dressed his wound and stopped the bleeding. The burgomaster and two policemen declared that Ga— fell and hit his nose against the post of a door. Thence he went for his father and both crossed to Dordrecht, where they called upon one Mr. van E—. I must say a couple of words of this worthy: van E— had dabbled in law and his great regret is that he is not an LL.D. He is, or was, famous for his combativeness in all cases where the police came in, not only fighting the police himself but inciting others to litigation wherever he could. I cannot but say that the population of Papendrecht have the reputation of being a very bad lot, fights and riots being over-frequent there. The police in the place have a rather hard task, and, as report will have it, are prone to ill-treat those they have arrested, as soon as they can safely do so within the walls of the town hall.

Van E—, the war-horse smelling powder, writes a virulent article, which Ga— signs and gets inserted in one of the local papers. A suit for libel was brought against him and the tribunal at Dordrecht sentenced him to imprisonment. The amateur legal adviser made him appeal and the case was tried over again by the court of justice at The Hague, where he still maintained that he had been brutally ill-treated and produced his comrade as witness, who declared that while he was in his cell he had heard Ga— call for help. The court at The Hague confirmed the sentence of Dordrecht, and on Ga— applying to the supreme court of justice the sentence was cancelled and the affair referred to the court of justice at Bois-le-Duc. Ga— and witnesses underwent a good deal of browbeating and unkindness there. People in Holland are a peaceable race, but passions were now beginning to stir; several papers began to write about the iniquitous proceedings of the Papendrecht police and of the impossibility to obtain justice when once a judge had pronounced sentence in order to prevent a slur from being cast on the police. Again the sentence was cancelled and the suit referred to the court at Arnhem. Here the preliminary examination was considered insufficient in several respects and the reports sent back to Dordrecht.

In the meanwhile the case, a rather trifling one at the beginning, had swelled to a business of great proportions, Ga— now having to prove, not only that he had undergone cruel treatment, but at the same time that he inserted his article in the paper in the cause of public interest.

The judge who conducted the investigation (judge of instruction as he is styled), considering that several of the witnesses seemed abnormal, appointed three physicians, alienists, Prof. Jelgersma of the Leiden

University, van Deventer, Inspector in Lunacy, and Taalman Kip, to examine the culprit and witnesses and to send in a psychiatric-psychological report on the affair of the Crown *versus* Ga—. Had a medical investigation been ordered at the very beginning of the suit nothing particular would have happened, but never before, and as far as I can find, in no country, was ever the order given to medical men for the psychological examination of a fact. Here was another cause for debate. A man, it was said, and I think very correctly, may be the object of a medical analysis, but as to the facts, they belong to the domain of the judge and should remain his. Why, several asked, do not the physicians refuse to act up to so large an order? Several medical enthusiasts were loud in their applause, proclaiming that this was the proper procedure, others angrily hinting that a tribunal should henceforth be completed by a couple of medical judges. And, indeed, here was the hitch. I believe it was Lacassagne who pronounced the axiom, "Il n'y a pas de crimes, il n'y a que des criminels," and the very same words may be applied to the acts of a lunatic, and the importance of an act is of very inferior importance to the medical expert. It is only the man who did the deed who may be the object of a medical inquiry, "How did he react to motives?" but not "What was the result of his action?"

The three experts set to work and began by examining van E—, the man who was at the bottom of the whole thing. They declared him to be a sufferer from delusions (*Querulantenwahnsinn* of the Germans), that his hobby of setting up people to prosecute policemen and to resist all sorts of authority was owing to this disease, and that in consequence his evidence was unreliable. Space, of course, will not allow me to give a full account of the report, which is a very extensive one. I can only give the conclusions. Ga— was found an imbecile, who acted under the suggestion of van E—. No fewer than ten witnesses were declared mentally defective.

The whole thing then burst like a bubble. The court of Arnhem acquitted Ga— on account of mental deficiency. "*Parturiunt montes nascitur ridiculus mus.*"

The case as such is at an end, but very grave questions were raised. To begin with, van E— protested in a petition to the Supreme Court of Justice demanding a revision of the diagnosis which, he said, cast a stigma on his reputation, and which damaged him in the eyes of the public; to which he received the answer that the court could not judge the diagnosis of a doctor. Public opinion, too, revolted against this dissection of a man's mind in public, and several articles appeared urging people to refuse to be examined if ever this thing was to be repeated.

The lawyer for the defence, Mr. van Hamel, now professor of law in the University of Amsterdam, endeavoured to prevail on the judges at Arnhem to leave out the reading of the medical report, but this request met with a refusal.

The report itself is very exhaustive and contains many very good and sound remarks. It begins with a consideration on reliability of witnesses in general, and they draw the conclusion that this reliability depends on two factors, *viz.*, whether the person in question *can* and

whether he *will* tell the truth. Now a somewhat funny incident occurred in the case of the culprit, Ga—: he said he had forgotten on what day the window-breaking had happened. His lawyer asking him, "Now did you really not know when that happened?" he answered, "Well, certainly, it was the 8th of September, a Sunday, but I got tired of all the silly questions of these fellows."

The report gives a very lucid account how general opinion got roused, and how at last people who knew nothing whatever about the business sided with the accused; in fact their arguments may be condensed into the well-known words of Tarde: "*La société c'est l'imagination et l'imagination c'est une espèce de somnambulisme.*"

Looking at things calmly now the fierce passions are at rest, it can only be said that the case was sadly mismanaged. I do not wish to cast a slur upon the three physicians, who did what they thought right, but as matters now stand the case has done much to lessen the respect for justice and for the authority of medical experts. A great many people who should know better still think that an alienist sees none but insane people; how else can these medical men declare almost a whole village insane? and, they add, the judges make their task easy by casting the whole responsibility on the shoulders of the doctors.

In a parliamentary debate the proceedings were severely censured, and it is highly improbable that a similar procedure will be again adopted.

The angry remark that in future tribunals should be completed by a few medical judges will, of course, never be realised, but the case was very instructive as it showed how many people whose evidence is implicitly believed are anything but reliable, and another hint has been heard, a hint which perhaps may be carried out in a far future, *viz.*, that the judge who conducts the preliminary investigations should do so seconded by a medical man. He may give his remarks to the examining judge, and mental disease, if so discovered, is not publicly announced in court, *i.e.*, not of people who are summoned merely as witnesses.

The sad business again shows the truth of the words of the Greek poet in "*The Encheiridion*," that it is not the acts which frighten men but the dogma that is the consequence of the act: "*Μη θαράσσει τους ανθρώπους τα πράγματα, ἄλλα τὰ περὶ τῶν πραγμάτων δόγματα.*"

SPAIN.

By Dr. W. COROLEU.

AN association has been founded at Barcelona with a view to improving the study of neurology and psychiatry and giving advice to the authorities regarding these subjects. It is the first of its kind in Spain with the exception of one which existed many years ago in Madrid. At present a great enthusiasm prevails and many discussions have been held on the improvement required in institutions for the insane. The

main subject requiring immediate attention is the conditions existing in S. Baudilius Lunatic Asylum. Great abuses existing there were denounced and the county council was obliged to send a commission with ample powers to inquire into them, which led to the discovery of a sad state of affairs, both of negligence and brutality, within that establishment. As there are in this country no commissioners in lunacy, and lunatic asylums are permitted to administer at their own discretion in fact, though not in law, angry debates have arisen and still are carried on. The affair has become somewhat political owing to the lunatic asylum being governed by friars, which involved religious and irreligious antipathies and prejudices. Now an alienist inspector has been nominated in order to obviate the most crying abuses.

This has been a year of ill omen for lunatic asylums. In the Ciempozuelos Asylum (Madrid) also were discovered many abuses which ended in an inquiry and a change of medical staff. The root of all these evils is the bad management of those institutions which are in the hands of religious bodies by charters granted by the county councils. These religious bodies are not at all fitted for the work and aim only at its profits.

In Madrid has been issued a phrenopathical review, *The Spanish Archives of Neurology and Psychiatry*, and in Barcelona another with the title, *Barcelona Phrenopathical Review*, aiming at being a continuation of one of the same title published during Dr. Giné's life. This last is edited by Dr. Giné (jun.) and has a more limited scope. Barcelona has also the *Spanish Phrenopathical Review* issued first in 1902. It contains little matter and consists mostly of translations.

No chairs of mental science have been provided for in spite of the reforms in medical teaching. The professor of clinical medicine has in his charge a section of psychiatry, which practically consists of a few visits to some lunatic asylums. Sometimes, also, the professor of forensic medicine makes, with his students, trips to an asylum. Such insufficient trifling constitutes the psychiatric teaching in this country.

The books on the speciality requiring mention are: A work of Dr. Victorio, a well-known medical officer, on *Neurology and Psychiatry*, intended to be used as a manual or hand-book for students, and a leaflet of Dr. Mas Casamada on *The Management and Care of the Insane at the beginning of the Twentieth Century*. Another leaflet created some sensation, written by Dr. Ruiz, a superintendent of the Gerona Asylum, which dealt with the "case" of General Alvaró di Castro, who commanded the resistance to the siege by the French in 1809.

The Corporation of Barcelona intended some time ago to create an institution for defective children, but the project appears now to have collapsed. A Committee has been formed with the same object under the presidency of the Governor of Barcelona, but the affair is still in its infancy. The want of institutions of this kind is severely felt in Spain, which is one of the few European countries where none of them exist.

Epitome of Current Literature.

1. Physiological Psychology.

The Galvanometric Measurement of the Emotions [Les Variations Physio-galvaniques comme Phénomène d'Expression des Emotions]. (Rev. de Psychiat., Dec., 1910). Piéron, H.

During recent years, a few investigators in several countries have attached great importance to the galvanometer as a sort of psychometer which would revolutionise psychology, while others, without going so far, believed that the "psycho-galvanic reflex" furnished a new and valuable aid in human and comparative psychology. In reality, however, it is not new though it has been discredited or even forgotten, and appears to have been discovered by a magnetiser, the Baron de Puyfontaine, who called Charcot's attention to it more than thirty years ago. Piéron furnishes an interesting history of the methods, results and theories of various investigators (Vigouroux, Féré, Tarchanoff, Müller, Vereguth, Peterson, Morton Prince, Boris Sidis, etc.), and then proceeds to describe and discuss his own experiments at Villejuif on seven subjects, carried on during several months, with the employment of electrodes of very various character.

Piéron found that the reactions were very unequal and variable. They were diminished in a state of sleepiness and increased in a state of excitation, whatever its cause might be. The maximum of deviation was produced under the influence of a sudden stimulus, like the sound of a gong, occurring in a state of distraction. When the experiments were carried on for some months, at intervals, a period was reached when no reactions could be obtained. Intellectual operations were the first excitations to cease yielding any result, then sensorial stimuli, finally pain and sighs (which were a peculiarly efficacious factor). These results become comprehensible, the author considers, if the emotional factor is regarded as responsible for the deviations throughout, and he confirms the observation of others that a greater deviation may accompany an apprehension of a stimulus than is caused by the actual stimulus. While, however, previous investigators have regarded the emotional state as one of the factors of the phenomenon, Piéron regards it as the sole effective factor. The galvanic reaction is thus a phenomenon of emotional expression and nothing else. With regard to the essential nature of the phenomenon, Piéron finds difficulties in regarding it as due to variations of cutaneous resistance, or to the development of an electro-motor force, but somewhat vaguely suggests that it is due to the development of electro-motor forces of organic origin under the intervention of the exosomatic current, a current of opposition, of uncertain nature, being set up.

Piéron considers that the value of the galvanic phenomenon in psychopathology and comparative psychology has been unduly exalted. It furnishes, indeed, an objective method of revealing emotional states, but not, on the whole, a better method than the plethysmographic

curve. As a test of the presence of anæsthesia, also, it is not so reliable as the pupillary reaction. The method is one with difficulty applied to animals.

HAVELOCK ELLIS.

The Subconscious [Il Subcosciente]. (Rev. di Filos, 1911.) Assagioli, R.

This paper which aroused much discussion when read at the International Congress of Philosophy (Psychology Section) this year, is a summary discussion of recent aspects of the subject in the light of a full knowledge of the literature. Dr. Assagioli's position is reasonable and temperate; he chiefly seeks to clarify the problem and to define terms. He admits no unconscious psychic activity. On various grounds he accepts the psychological conception of the subconscious "as so vigorously maintained by Bernard Hart." He insists on the caution necessary in the use of phrases like "mnemonic traces," which imply for psychic states an objective basis we are really altogether ignorant of. He accepts the existence of dissociated states of personality, more especially as presented by Janet and Prince. He is a partisan of Freud in holding that the part played by our "principal consciousness" has been greatly exaggerated, and that our conduct, our opinions and our disposition are largely influenced by psychic factors of which we are not directly conscious, though it is impossible to deny consciousness to them. The author also points out the uses of the subconscious in psychotherapy, in education, in the treatment of criminals, as well as in moral self-control and the utilisation for high ends of the latent forces of the organism.

As regards terminology, Assagioli would use *subconscious* to indicate the whole of the psychic element in us of which we are not conscious (not restricting it as Janet proposes); *co-conscious or dissociated psychic activity* indicates the actual activity of the secondary centres of consciousness; *latent consciousness* refers to the accumulated records, ideas, etc., which are outside the actual field of consciousness. Assagioli rejects Prince's use of the "unconscious" in this connection, and confines the term "subliminal" to the special theory set forth by Myers. A bibliography is appended, confined to modern literature strictly related to the subject.

HAVELOCK ELLIS.

Miracles of Healing. (Amer. Journ. Psychol., vol. xx, No. 2.) Waddle, C. W.

In this interesting and suggestive study (written under the inspiration of Stanley Hall), the author, starting from primitive theories of disease, considers in turn the evil-spirit theory, the primitive healing art, the medicine-man and his methods, the place of magic and miracle, the miracles of the Old Testament, Christian miracles of healing, the King's evil, demonology, and some modern sects such as Shakerism (which contained the germ of various popular latter-day superstitions) and the Emmanuel Movement.

The author concludes that all miracles of this kind are due to suggestion, and are brought about in accordance with the law that the mind tends to translate into physical reaction any suggestion or idea which can be actively aroused and kept at the focus of attention,

provided that the idea seems reasonable and possible and that inhibiting and opposing ideas are banished. Miracles thus rest on a scientific basis of physical and mental activity. That they tend to be associated with a type of the healing cult which reflects little credit on popular intelligence is, the author believes, in part due to "the failure of the rank and file of the medical profession to live fully up to their opportunities in the field of psycho-therapeutics." But it is also largely due, as he elsewhere points out, to the age-long tendency of the human mind to react to the belief in the supernatural. It will be ages yet before a religion devoid of the supernatural becomes a possibility, and we must not expect that faith in the efficacy of prayer and other deeply rooted instincts can, or will, be neglected as a means of making suggestions effectual. Greater co-operation is advocated between churchmen, physicians, and psychologists in this field. In the end saner and more scientific views will prevail, and the author believes that the laws of mental healing have a wide sphere of usefulness even as hygienic measures. An extensive bibliography is appended.

HAVELOCK ELLIS.

2. Clinical Neurology and Psychiatry.

Infantile Hemiplegia and its Relationship with Epilepsy and Idiocy [*L'Hémiplégie Infantile. Les Rapports avec L'Epilepsie et L'Idiotie*]. (Bull. de la Soc. de Med. Ment. de Belgique, Jan., 1911.) Deroubaix.

The writer points out the difficulty of stating the cause of hemiplegia in infants, and the much greater trouble of tracing the original cause when the patient is grown up.

Bussand and Marie do not allow meningo-encephalitis as a cause, which they limit to hemiatrophy of the brain, sclerosis of one hemisphere, lacunar cyst (from hæmorrhage, etc.), and true porencephaly (*i.e.*, of fetal origin).

Deroubaix notes that the contracture is not always due to atrophy of the descending pyramidal tracts, for these tracts are not always degenerated, and he concludes that the contracture is due to the unequal atrophy of groups of muscles, as those never used, owing to cerebral atrophy, waste and the others gradually overcome them.

He discusses the diagnosis in six cases, but only one is illustrated by an autopsy: in this case, in which there was considerable atrophy of the cells on both sides of the brain, and a visibly greater atrophy on the left side, corresponding to a right hemiplegia, the clinical account shows that the patient had at first very frequent fits; these yielded to possible bromide of potassium, and were succeeded by attacks of vertigo; these ceased for many years and the fits again recurred, and without any special treatment ceased, to be followed by severe attacks of migraine, and finally he had an attack of status epilepticus in which he died.

The writer points out the interest of these different phases often to be met as separate ailments in different members of one family, all occurring at different times in one patient.

M. A. COLLINS.

*Sudden Death during an Epileptic Fit. (Gaz. des Hôp., Jan., 1911.)
Marchand, C.*

The symptoms of an epileptic fit are so severe that death might be thought a likely event, but apart from accidents, *e.g.*, suffocation or strangulation, it is denied by some.

Rostan, who had charge of 500 epileptics at Salpêtrière, stated: "I have never seen anyone die from an epileptic fit, except as the result of strangulation or suffocation, or where a number of fits has produced fatal cerebral lesions. Death does not occur from an epileptic fit."

The writer has collected fifteen cases, thirteen from the writings of others, and two of his own experience; of these, eight were due to cerebral lesions, bulbar hæmorrhage twice, ventricular hæmorrhage once, meningeal hæmorrhage once, subpial hæmorrhage twice, and cerebral congestion twice. Of the non-cerebral causes, he gives rupture of heart three times (left ventricle twice, right ventricle once), rupture of aorta twice, obstruction of respiratory apparatus by food twice. In the author's two cases (bulbar hæmorrhage and subpial hæmorrhage) the ruptured vessels were healthy.

M. A. COLLINS.

*The Cerebro-Spinal Fluid in Mental Disorders [Le Liquide céphalo-rachidien dans les maladies mentales]. (Gaz. des Hôp., Feb., 1911.)
Roubinovitch, J., and Paillard, H.*

This article is a summary of the more recent work on the physical, chemical, and bacteriological properties of the cerebro-spinal fluid in cases of insanity. The authors attach considerable importance to the presence of choline, and regard it as a clear indication that nervous elements are undergoing disintegration. The technique for the detection of choline is fully described, and an addition is its reaction with polarised light. The statement is made that nearly all culture experiments of the cerebro-spinal fluid are negative.

The changes occurring in the cerebro-spinal fluid in general paralysis are detailed. A discrete lymphocytosis is always present, and indicates the presence of the latent meningitis of a more or less chronic type, which always precedes the disease. The pressure varies as the mental state alters; it is high during convulsions and excitement, and low during the later paralytic stages. On account of increased cellular elements of various kinds the specific gravity is raised, while an increased amount of albumen is always found. The presence of cholesterin, choline, and ammonia has been noted. The invariable occurrence of lymphocytosis is important, as in the alcoholic and arterio-sclerotic psychoses no such phenomenon is found. The concluding remarks upon general paralysis are that the cerebro-spinal fluid is sterile and Wassermann's reaction positive.

Some observations are also made upon the cerebro-spinal fluid in alcoholic, diabetic, and uræmic conditions, but nothing definite or constant is described.

COLIN MCDOWALL.

Auto-psychology of the Manic-depressive. (Journ. Nerv. Ment. Dis., Oct., 1910.) Reid, Eva C.

Although insight is generally given as one of the diagnostic features of manic-depressive insanity and is enumerated by Kraepelin as one of the characteristics of this psychosis, the writer of this article believes that a careful study of the question would indicate that it is not as constant as is generally supposed. Of one hundred cases of manic-depressive insanity treated in the Washington Government Hospital for the Insane during the last two years, thirty-nine had complete insight, thirty-three partial, whilst in the remaining twenty-eight cases it was entirely lacking. Her observations led her to the conclusion that insight is to a large extent dependent upon the intelligence of the individual, and she found that in the coloured race it was never complete. Her experience differs from that of Clouston, who believes true manic-depressive insanity to be essentially a psychosis of the educated, as she found it very frequent in the coloured race (presumably uneducated), their attacks being typical in all respects, unless a lack of insight would be considered atypical.

A lack of insight in some cases may be due, as Arnaud points out, to the fact that many persons suffering from manic-depressive insanity are never absolutely normal, and are therefore not in a position to take a proper view of the situation.

The writer found that patients would give the best account of their experiences whilst in a state of hypomania, as when they returned to their normal mental condition they had a feeling of shame in regard to many of their speeches and actions, and refused to think or speak of them.

They appear to have been at all stages of the attack keenly alive to their treatment and surroundings.

It is interesting in this connection to note that *seclusion* was asked for in many instances by the patients who possessed full insight. The author believes, with Dolan, that pain does unquestionably exist in cases of manic-depressive insanity in the female, although why the psychic disturbance should manifest itself in pain is a question yet to be solved. She does not agree with Imboden and some other writers who hold that it is due to hysteria.

With regard to treatment, she is of opinion that patients suffering from manic-depressive insanity may themselves after, if not during, their first attack give valuable advice on the subject.

To the article are appended the histories of two cases of this psychosis written by the patients themselves, both women of education (one a trained nurse), which are of great interest on account of the complete insight manifested by them, and the coherent and detailed account they are able to give of their mental processes during their periods of excitement and depression.

A. W. WILCOX.

Some of the Difficulties encountered in making a Diagnosis of Paresis. (Journ. Nerv. Ment. Dis., Dec., 1910.) Schwinn, G. H.

The clinical histories and records of autopsies of three cases of paresis in which the *post-mortem* findings were not typical macro-

scopically, but all showing unmistakable evidence of this disease when examined histologically, are here presented.

In the first case, a diagnosis of arterio-sclerotic dementia was made, although paresis was considered. This diagnosis was based on the patient's age (sixty), the presence of arterio-sclerosis, the pronounced dementia, and the subsequent epileptiform or apoplectiform seizures. There were no pupillary disturbances noted and the speech defect was not characteristic. *Post mortem*, the macroscopic findings were not typical, but the histological examination of the cortex showed the essential elements found ordinarily in general paralysis. The author thinks that had an *ante-mortem* examination of the cerebro-spinal fluid been made in all probability additional evidence pointing to paresis would have been obtained.

In the second case, the clinical history and result of the examination of the cerebro-spinal fluid indicated paresis. The *post-mortem* findings were not conclusive, but the histological examination showed a typical picture of this disease.

In the last case, a clinical diagnosis of general paralysis was made. It is of special interest in so far that no typical forms of plasma-cells could be detected on examination of the cerebro-spinal fluid.

The author believes this to be due to the fact that plasma-cells may exist in the brain-tissue with little or apparently no inflammatory involvement of the meninges, and in this case the cyto-diagnosis of the cerebro-spinal fluid would not be specific. *Post mortem*, the diagnosis of general paralysis was not confirmed macroscopically, but the histological findings were typical of this disease.

Given the clinical history of a case, with the cytological and chemical findings of the cerebro-spinal fluid, and the result of a Wassermann complement fixation reaction of the blood and cerebro-spinal fluid, he believes that we can now say positively whether we are dealing with paresis or not.

He concludes with a plea for the histological study of all cases of paresis or suspected paresis coming to autopsy, as the three foregoing cases show conclusively that the brain does not always present the typical picture described when viewed with the naked eye.

A. W. WILCOX.

Homosexuality and Insanity [*Homo-sexualität und Psychose*]. (Zeit. f. Psychiat., Bd. lxxviii, No. 3, 1911.) Näcke, P.

If homosexuality is, as was long believed, a manifestation of degeneration, we should expect to find, as Näcke points out, that the homosexual yield a relatively larger contingent to our asylums than the sexually normal population. As a preliminary step in his investigation, Näcke applied to Hirschfeld, of Berlin, who is universally recognised to possess a wider acquaintance with sexual inverts than any other authority. Hirschfeld replied that, among some 6,000 homosexual persons whom he had had an opportunity of knowing, hysterical conditions (not usually on hereditary basis) were fairly common, and neurasthenia of high degree was decidedly frequent, but though states of depression were common, he had never seen pure melancholia, and

very seldom mania, but paranoiac delusional ideas frequently, and he agreed with Bryan that religious delusions were not uncommon. General paralysis occurs, but is comparatively rare, and the same may be said of dementia præcox. On the whole, although Hirschfeld was unable to give precise figures, there was no reason whatever to suppose an abnormal prevalence of insanity. This is Näcke's own view. He finds confirmation in the very large percentage of inverts (75 *per cent.*) who are of good heredity, as well as in his own asylum experience. He has scarcely found a single true invert in the asylum. The only probable exception was a patient who told Näcke after leaving the asylum that he was an invert, and at a later period fell into the hands of the police on this account. It is quite true, Näcke points out, that homosexual actions occur in every form of psychosis, especially in congenital and secondary dementes, and at periods of excitement, but we are here almost exclusively concerned with pseudo-homosexuality, which has nothing to do with true inversion. HAVELOCK ELLIS.

3. Treatment of Insanity.

Adalin, a New Sedative and Hypnotic [*Ueber Adalin, ein neues Sedativum und Hypnotikum*]. (*Neur. Cbl.*, Jan. 2nd, 1911.) Kalischer, S.

Adalin is a synthetic drug recently introduced by Bayer. In composition it is a brom-diethyl-acetyl-urea. The hypnotic influence of the various urea derivatives is familiar; veronal, one of the best known of recent hypnotics, is diethyl-malonyl-urea, or diethyl-barbituric acid; propional, a homologue of veronal, is dipropyl-barbituric acid; urethane is ethyl carbamate; and bromural, which contains about 36 *per cent.* of bromine, is α -brom-iso-valerianyl-urea. In adalin, as in bromural, the sedative effect of the urea derivative is increased by the combination with bromine. Adalin is a soft, crystalline, almost odourless substance, with a faintly bitter taste; it is very slightly soluble in water. In animals it was found to be a moderately powerful hypnotic, rather slow and unequal in its action (owing to its slow absorption), and with a very moderate toxicity, and therefore a comparatively safe drug. No ill-effects on respiration, circulation or temperature were observed in animals. In the urine it is excreted in three different ways—as an inorganic bromide, as the bromide of a fatty acid, and as an organic compound of bromine soluble in ether; very little is excreted unaltered.

The drug can be administered in powder or in tablets, the latter undergoing ready disintegration in the stomach; if a rapid effect is desired, hot water, tea, or milk, should be taken immediately after the dose. The dose ranges from 5 to 25 gr.; 5 to 10 gr. three times daily have a sedative influence; a single dose of 10 to 25 gr. at bedtime acts as a hypnotic. The drug has been given continuously for weeks and even months without ill-effect on respiration, circulation, or digestion; neither bromide-acne nor any other exanthem has been observed to result from its use; the absence of unpleasant after-effects

applies even to cases of renal disease and arteriosclerosis. No cumulative effect was noticed; on the other hand, in some cases it appeared to lose its power to some degree by prolonged use, so that an increase of dose became necessary. It was ineffective as a hypnotic in cases in which considerable bodily pain was present. The effect of the drug was somewhat unequal in different patients, without any cause for the differences being discernable. In doses of from 10 to 25 gr., however, it commonly induced from five to seven hours of profound, quiet and refreshing sleep; occasionally the patient would wake after an hour or two, but would soon fall asleep again. In the absence on the morning after its use of a heavy, weary feeling, with oppression in the head and even headache, adalin contrasted favourably with what is seen in many cases after the administration of other hypnotics—veronal, sulphonal, etc. This favourable result is doubtless dependent on the rapid break-up of the drug and its speedy elimination by the kidneys. The cases in which it is of especial value are those of hysteria, neurasthenia, states of anxiety, depression, obsession, moderate excitement, and epilepsy. In cases of cardiac neurosis, with feelings of anxiety, palpitation, and restlessness, small sedative doses three times daily had an excellent effect; the same doses were useful in cases of organic renal and cardiac disease in which abnormal bodily sensations hindered sleep. In hysterical convulsive attacks it was also useful, whereas in true epilepsy, though it diminished excitement and induced sleep, it failed to control the epileptic paroxysms. As a hypnotic its special value was in cases in which sleep was prevented by nerve-tension, overstimulation, and emotional excitement; it was very valuable also in those cases of insomnia in which the patient sleeps for an hour or two, and then awakens, to pass the rest of the night in a state of anxious and restless misery; in these latter cases very moderate doses sufficed.

To sum up, the principal advantages of adalin consist in its harmlessness, ⁽¹⁾ its freedom from unpleasant taste, its rapid combustion in and elimination from the body, and the absence of all disagreeable subsidiary or after effects. It may be especially recommended in cases of sleeplessness, not too severe or obstinate, whether the difficulty takes the form of inability to go to sleep, or of premature awakening. There is no other hypnotic of like potency after whose use the patient awakens so bright and fresh.

M. EDEN PAUL.

The Action of Adalin in the Neuroses and Psychoses [*Ueber Adalinwirkung bei Neurosen und Psychosen*]. (*Zeit. Neurol. u. Psychiat.*, Bd. iv, H. 4, 1911.) Hennes, H.

Adalin is a white inodorous solid, obtainable either as a powder or in tabloid form. It is almost insoluble in cold water, but is dissolved by warm water to a slight extent. The taste is somewhat bitter, but not unpleasant. The dose is 4 to 8 gr. or 12 to 25 gr., according as a sedative or hypnotic effect is required. The present author has

⁽¹⁾ It must be remembered that this claim is almost invariably made for every new hypnotic, and that in nearly every case it is not sustained by wider experience; cf. Dr. Robertson's interesting paper on "Sulphonal" and the subsequent discussion in the last number of the Journal.—M.E.P.

employed the drug in over 100 cases and is very favourably impressed with the results obtained.

Neuroses.—Under this heading were grouped cases of neurasthenia, hysteria, angstneuroses, nervous phenomena accompanying the climacteric, etc. Four grains of adalin administered four to six times a day produced considerable improvement. The results were quite as good as those obtained by the bromides which had formerly been employed, and the drug seemed to be better taken by the patients. In several cases 16 to 20 gr. a day was given for two or three weeks without any ill-effect, and it was not found that any increase in the dose was required. This is contrary to Kalischer's experience. In the cases where disturbance of sleep was a prominent symptom, the evening dose was increased to 8 or 12 gr.; almost without exception a deep and refreshing sleep was then obtained. Patients who had formerly taken veronal, trional, etc., spontaneously stated that they felt better with the adalin. Sleep was also induced more speedily, and the period of increased excitement preceding sleep, often observed with veronal, was not present. Only after long unbroken administration of adalin was drowsiness during the day observed, and this symptom promptly disappeared when the drug was discontinued. Impens' experiments on animals show that adalin is rapidly eliminated from the system, and a cumulative effect is therefore *à priori* improbable. Fleischmann states that the subsequent drinking of hot fluids promotes the decomposition of adalin and therefore hastens its hypnotic action.

Psychoses.—Excitement of moderate degree occurring in cases of dementia præcox was markedly ameliorated by doses of 8 gr. given three times a day. In severe manic excitement, however, even large doses produced no satisfactory result. The restlessness common in senile dementia was considerably influenced by the administration of adalin, and evening doses of 12 to 16 gr. generally produced several hours' sleep. In these mostly feeble patients no bad effects on the circulatory organs were observed, and in this respect the drug compares favourably with most other sedatives. The states of agitated depression occurring in certain melancholics seemed altogether unaffected by adalin, but the excitement of general paralysis was benefited to some extent.

The pulse, respiration, and temperature were uninfluenced by long-continued administration, and no unfavourable effects upon the digestive organs were observed.

BERNARD HART.

The New Sedative and Hypnotic, "Adalin" [*Ueber das neue Sedativum und Hypnoticum "Adalin"*]. (*Zeitschr. Neurol. u. Psychiat.*, Bd. iv, H. 4, 1911.) Pelz.

This is an account of the results obtained by the use of adalin in forty cases. All the cases belonged to the group of the neuroses, and comprised examples of hysteria, neurasthenia, and compulsion-neuroses.

The general conclusions reached are very favourable, but in contrast to most other investigators, the present author frequently observed troublesome after-effects, fainting attacks, lassitude after waking, etc.

He found, moreover, that increase in the dose was often necessary if the drug was employed for a prolonged period.

BERNARD HART.

4. Sociology.

Considerations about Infantile Criminality [*Considérations sur la Criminalité infantile*]. (*Prog. Méd.*, Feb. 18th, 1911.) Rémond and Voivenel.

The authors point out that the age of criminal majority, as fixed by the law, is an arbitrary limit which very often fails to correspond with the attainment of physical and mental maturity. Neglecting the legal standard, accordingly, they define infantile crime to include all such anti-social acts as show in their origin and characteristics the influence of infantilism. Such acts they group in three categories: (1) those of impulsive origin; (2) those characterised by moral idiocy and exaggerated egoism; and (3) those which are due to intellectual defect, and belong, therefore, to the domain of what they term "indirect criminality." They summarise observations illustrating the characteristics of the second and third groups. While recognising the difficulties presented by concrete cases, they insist that a careful and minute inquiry into the mental functions of the criminal will usually determine in which of these classes his crime is to be placed; and they indicate that this diagnosis is a matter of importance from the point of view of treatment. An offender whose criminal conduct is merely the expression of the exaggerated impulsiveness of youth will be best dealt with by securing adequate family control, or, failing that, needs medico-pedagogic treatment, and will certainly suffer from penitentiary discipline. Such discipline is also unsuited for the intellectually defective, who become criminal as the result of suggestion or from incapacity to appreciate the effect of their actions; they require control under conditions providing suitable educational influences. On the other hand, for the moral idiot the best treatment is penal restraint of a sufficiently stringent character to inspire fear, and so to appeal to the self-feeling, which is the only accessible side in the affective life of these defectives.

W. C. SULLIVAN.

Proposed Sterilisation of Certain Degenerates. (*Dublin Journ. Med. Sci.*, Nov., 1910.) Rentoul, R. R.

In this paper, Dr. Rentoul once more urges the crying necessity of some operative interference in the case of degenerates to prevent their perpetuating their kind. He advocates that in the male the vasa deferentia or the spermatic cords should be divided and ligatured, and in the female that the Fallopian tubes should be similarly dealt with.

He believes that there is a steadily growing feeling in favour of this proposal in this country, and points out that it is now being discussed in France, Germany and Switzerland, but that so far America is the only country which has acted upon it and legislated upon such operations. He then discusses at length, and criticises the Acts passed in

Indiana, California and Connecticut. The first of these Acts includes confirmed criminals and rapists, as well as idiots and imbeciles. It does not specify the particular sterilising operation to be performed, and relates only to those confined in institutions. It fails, he thinks, in not providing a heavy penalty against those who sterilise degenerates without official sanction. The second includes also those guilty of sexual offences, and moral and sexual perverts. It does not lay down the operation to be performed, nor make it an offence to operate without authority under this Act to prevent impregnation or conception. In the third State oöphorectomy or vasectomy, as the case may be, are the operations indicated, and it is made a penal offence to perform either operation except as a medical necessity, unless authorised by this Act. In each particular state the justifiability of operation is decided upon by a board or committee of experts, the composition of which differs somewhat. Sterilisation Bills, introduced by the Legislature of the States of Pennsylvania, Wisconsin and Oregon, and of Ontario (Canada), have not become law.

The author then deals with what he terms the alternatives to his proposals. Suicide he regards as helping little to lessen degeneracy; forced abortion, murder of degenerates, and forbidding degenerates to beget children he dismisses as useless or morally wrong, whilst life-long incarceration, he remarks, is much more expensive to the ratepayer and a more drastic measure than the non-dangerous operation of sterilisation. He makes no suggestion as to the justifiability of performing this operation on certain degenerates at their own request and that of their lawful guardians.

A. W. WILCOX.

Pathological and Prolonged Sleep: A Critical Digest by M. Eden Paul, M.D. (Read at the Quarterly Meeting of the Association, on May 23rd, 1911, in London.)

In the August to December numbers of the *Revue de Psychothérapie* (1910)—the new name of the *Revue de l'Hypnotisme*—there appeared a series of articles on the subject of pathologically prolonged sleep, with detailed accounts of several cases.⁽¹⁾ A brief abstract of these papers will perhaps be of interest to the members of this Association.

There is no name for this condition, which is at once generally accepted and entirely satisfactory. In the official nomenclature of diseases drawn up by the joint committee appointed by the College of Physicians, the only heading under which these cases can be entered is *trance*, which will be found in many medical dictionaries to be defined as "profound or abnormal sleep"; but this term is too loosely used to meet the needs of the case. The term *catalepsy* is often employed by sensational lay writers dealing with trance from the point of view of the

⁽¹⁾ List of articles in the *Revue de Psychothérapie*: August, 1910, "La Dormeuse d'Alençon," by Paul Farez; September, 1910, "La Rééducation Fonctionnelle de la Dormeuse d'Alençon," by Paul Farez; October, 1910, "Le Dormeur de Chambéry," by Paul Farez and François Carret; November, 1910, "Le Rôle de la Narcose dans le Réveil des Léthargiques," by Paul Farez; "Léthargies et Sommeils Prolongés," by Dr. Berillon; December, 1910, *ibid.*

alleged risk of premature interment; but the medical significance of catalepsy is a state of sleep-like unconsciousness, accompanied by a peculiar plastic state of the limbs (Gowers, *Diseases of the Nervous System*, second edition, vol. ii, p. 1030). Some have spoken of the condition as *narcolepsy*; but this term has of late years been applied chiefly to the tendency to pass into deep sleep for brief periods at odd and inopportune times, and it is better to limit the use of the term to such cases. *Lethargy* is etymologically unsatisfactory, since its original meaning is "forgetfulness" rather than "sleep." *Hysterical sleep* is another name often used, and is so far accurate in that the condition is undoubtedly in most cases a manifestation of hysteria (if hysteria be regarded as a *diathesis* rather than a *disease*); but there is nothing in this name to indicate the fact that the slumber is at times of extraordinary duration, lasting many months, or even years. *Pathological sleep* and *prolonged sleep* have also been used by various authors, but neither can be regarded as entirely free from objection. But any of the above names would do if the profession would agree to use that name only for the condition, and to use it for that condition only.

Marianne Olivonne.

The first case to be described dates from the eighteenth century. For this reason, and also because it is not entirely typical, it may be dealt with very briefly. There exists a contemporary woodcut, of about the year 1772, at the foot of which are inscribed the following particulars: "Portrait of Marianne Olivonne, of Saint-Marcel d'Ardèche, in Vivarais. This woman, now about fifty-five years of age, falls into a lethargic sleep every year on March 1st, and the sleep persists without a break till the 19th of the same month; during these nineteen days her limbs are stiff, her teeth clenched, her eyes closed, with a convulsive movement in the eyelids. On the nineteenth day she gives a sigh, wakes up, and remains quite well for the rest of the year, although she lives entirely on vegetables and unripe fruit. She has suffered from this very remarkable illness since she was eighteen years of age; the most extraordinary feature in the case is the regular return of the periods of sleep." From a further account of the case we learn that, in anticipation of the attack, she was accustomed to confess herself on April 30th; returning home after this ceremony, she put clean sheets on her bed, and put on clean night clothing; going to bed, she received the viaticum, and lay with her hands crossed, holding a crucifix. Thus lying, she awaited without alarm the onset of the expected sleep. This would come on suddenly, without pain, and without movement of any part of the body or limbs; her arms and legs suddenly became quite stiff, so that it was impossible to move them; simultaneously her eyes closed, and her teeth were clenched, so that it was impossible to open her mouth. In this state, with a death-like appearance, and in fact no other sign of life than a slight continuous movement of the closed eyelids, a very faint colour in the cheeks, and an almost imperceptible pulse, she remained throughout the attack (the state of the breathing is not mentioned). "During the nineteen days she took neither food nor drink; neither urine nor fæces were passed, nor was there sensible perspiration, so that her night-linen

and sheets remained quite clean. She was unaware of anything that passed round her bed, and was even insensitive to the pin-pricks sometimes made by unfeeling persons (*des gens durs*) in her arms and legs, although she suffered in the region of these punctures after the awakening." On March 19th, at about midnight, she awoke, the first sign of returning consciousness being a sneeze; soon after this she would open her eyes, and then began to speak, at first in a low voice; for two or three days, being very weak, she would remain in bed, but as she took food her strength would gradually be re-established. The "gentry" of the district, suspecting fraud, had her watched day and night during earlier attacks, and were satisfied that no food was taken, and that the patient was really unaware of her surroundings.

The Sleeper of Thenelles.

The second case to be described is that of Marguerite Boyenal, *la dormeuse de Thenelles*, or *la léthargique de Thenelles*, an inhabitant of the village of Thenelles in the department of Aisne: in this patient the profound sleep, trance, or lethargy, lasted no less than twenty years, viz., from May 30th, 1883, to May 22nd, 1903: of this patient detailed accounts were given in the French medical press at various times during her long sleep by Gilles de la Tourette, Berillon, and others, and occasional references to the case will be found in the French correspondence of the *Lancet* and other English medical papers. The patient, who belonged to the peasant class, was described by her mother as having always been "nervous" and delicate, not strong enough for field labours. The sleep began almost suddenly, after a fright, which gave rise to repeated convulsive seizures, terminating in the profound lethargy; she was then twenty-two years of age. I epitomise Berillon's description made in 1886, when she had been sleeping for three years.

He found the patient in bed, in the dorsal decubitus, in a small, dark, and stuffy room. Emaciation was considerable, but not extreme, affecting the adipose tissue much more than the muscles; the wasting was most marked in the abdominal region, so that the iliac crests projected strongly, and the abdomen was scaphoid. There was complete cutaneous anæsthesia; the knee-jerks were absent. The pulse-frequency was 100, the pulsations being barely perceptible (at the time the arm was in a state of marked contracture; the writer suggests that to this was due the pulse-frequency, and that otherwise the pulse would have been slower than normal). Breathing shallow but regular; there was not noticeable in the breath the odour of maceration observed in "fasting men," and in lunatics who refuse food. The face was of a yellowish waxy pallor, and expressionless; the appearance was altogether lifeless. On raising the lids it was seen that the globes were convulsively turned upwards to such a degree that it was impossible to ascertain the state of the pupils. Blowing sharply on the exposed ocular conjunctiva did not provoke any reflex closure of the lids. The jaws were so strongly clenched owing to contracture of the masseters that it was impossible to look into the mouth; the lips, however, could be separated, and it could then be

seen that several of the front teeth had been broken off, apparently early in the illness, when attempts were being made to open the mouth by force.

Any passive movement of the muscles speedily brought on a state of contracture; the arms, at first flexible, became rigid soon after being moved; slight friction, and even blowing on the surface of a muscle, threw it into a state of contracture. "The patient therefore presented a high degree of the *contractural diathesis* which, as Charcot showed, is a true stigma of the hysterical state." The right arm was raised at the shoulder from the bed, the elbow-joint was flexed, and the fingers were put into an unusual and strained position, one which it would have been difficult to maintain voluntarily for more than a minute or two. The whole limb then passed into a state of contracture in this constrained position, and thus remained during the half hour the patient was under observation. Neither verbal suggestion, pin-pricks, pinching, nor gentle blows elicited any response, reflex or voluntary. "To sum up, physical examination showed that the patient was in the condition described by M. Charcot under the name of lethargy . . . In this state no sensory manifestations, special or general, can be evoked, and signs of intellectual activity are completely, or almost completely, wanting. The anæsthesia is so profound that all stimuli are powerless to elicit any response. The mental inertia of a patient in the lethargic phase of what is called the great hypnotism is so absolute that it is impossible to communicate any idea to him by any process whatever, or to enter into any kind of relation with him. The sleeper of Thenelles presented all the phenomena observed in the state of induced lethargy."⁽¹⁾

The patient's condition remained unchanged as above described throughout the whole twenty years her sleep lasted. This fact is established by repeated medical observations, not only by those medical men from a distance who from time to time visited the patient, but also by Dr. Charlier d'Origny, a local practitioner, who was in attendance from first to last, and was summoned to her at once when, after an oblivion rivalling in duration the fabled sleep of Rip Van Winkle, she at length awakened.

As is commonly the case in these patients, whilst no attempt at

⁽¹⁾ Charcot and his followers (the "Salpêtrière school" of hypnotism), divided, it will be remembered, the hypnotic state, or rather the state of "great hypnotism," into three stages or phases, *viz.*, lethargy, catalepsy, and somnambulism. Liébeault, Bernheim and others of the "Nancy school" of hypnotism deny the natural existence of these stages, and, indeed, the natural existence of Charcot's *grande hypnotisme* at all, except in aggravatedly hysterical subjects—and in these the symptoms described were considered to be the result simply of suggestion. The Salpêtrière patients had come to learn what was expected of them, and, consciously or unconsciously, followed the prescribed cues. Associated with this controversy was another, whether the hypnotic state is a pathological condition which can be induced only in hysterical subjects—an induced neurosis, in fact—or whether it is a condition to which the enormous majority of, if not all, normal persons are susceptible. The controversy raged for many years, but it must now be considered to be decided mainly in favour of the views of the observers of the Nancy school. But this does not invalidate the truth of the resemblance pointed out by Berillon between the condition of the sleeper of Thenelles and the induced lethargy observed by Charcot in his *grande hystériques* at the Salpêtrière. The significance of this resemblance will be considered later.

mastication was made if solid food was put in the mouth, a spoonful of liquid poured to the back of the pharynx produced a reflex movement of deglutition. Thus several times a day she was given by her mother a spoonful of liquid nourishment, either of milk, yolk of egg beaten up in milk, or sugar-water. The excretions, urinal and faecal, gradually diminished after the onset of the sleep, until they became slight and infrequent. After a few months the menstrual flow also ceased.

The patient's awakening was heralded by a hysterical crisis similar to that which had signalled the onset of the condition. On waking she became fully conscious and could speak plainly and properly; the cutaneous sensibility was also fully re-established. She had no memory of anything that had happened in her environment during the twenty years' oblivion. The restoration of speech showed clearly that the brain-cells had not been injured by their prolonged inactivity. Unfortunately, she survived her awakening only by six days, "succumbing rapidly to a pulmonary affection." It is much to be regretted that no further particulars are given in the *Revue de Psychothérapie* regarding the patient's fatal illness, or whether any indications of the onset of this pulmonary trouble were manifest *before* the awakening. It seems possible that, as an intercurrent affection, it may have been the determining cause of the awakening. ⁽¹⁾

The Sleeper of Alençon.

This is a quite recent case, reported by Dr. Farez in the *Revue de Psychothérapie* of August and September, 1910. The special interest in this case is that the sleep was terminated apparently as a result of treatment after the comparatively brief duration of forty days. Josephine X—, æt. 32, domestic servant, had been subject for fifteen years to *grands crises hystériques*, occurring five or six times every year. In January, 1910, she began to suffer from aphonia; the history and the absence of any organic affection of the vocal cords showed this to be a new hysterical manifestation; at the same time she was troubled with digestive disorder. Owing to the fear of inability in future to earn her living, she now became extremely depressed in spirits. On the evening of June 11th, being still in the hospital at Alençon, which she had entered in the previous January, the prolonged sleep began, and continued until Farez saw her for the first time forty days later, on July 21st, 1910. Throughout this period the patient was fed through an œsophageal tube, passed *per os* (an attempt at nasal feeding at the outset provoked *crises de suffocation*); she was thus given a litre of milk with the yolk of an egg twice daily. Every other day she was given an enema, with satisfactory result; the urine was passed involuntarily. She menstruated once normally during the sleep. The pulse ranged between 65 and 70; the temperature was about 97° F. throughout. When Farez examined her in July there was general cutaneous anæsthesia, with absence of superficial reflexes, but the knee-jerks were

⁽¹⁾ The above comment was penned before I had read Dr. Farez's account of the sleeper of Alençon (*vide infra*), in which he mentions that the awakening in such cases is often determined by some form of intoxication, and that in the sleeper of Thenelles the awakening and the fatal issue were due to pulmonary tuberculosis.—M.E.P.

present. There was no contracture of the muscles, nor were there any convulsive symptoms, unless that name should be given to the incessant tremor of the eyelids—"a phenomenon not simply constant, but, one may say, invariable in these hysterical sleepers."

"What is usually done," asks Dr. Farez, "in these patients? Nothing; for experience has led to the conviction that in such cases therapeutic measures are without avail; it has become the practice to await the spontaneous termination of the sleep. In fact, however, the awakening, when it comes at last, is spontaneous in appearance only. It is ordinarily determined, it may be (as was well shown by Charcot) by a urinary discharge; or it may be, as I have proved in a certain number of sleepers, by some intoxication. For example, this intoxication was albuminuria in Gésine (a case in which the sleep lasted seventeen years); tuberculosis in the sleeper of Thenelles; and pneumonia in one of the Salpêtrière cases." But if we await this "spontaneous" awakening, we may have to wait a very long time.

But before summarising Farez's views on treatment, I wish to describe a fourth case—this time in a man.

The Sleeper of Chambéry.

The case was first reported in certain French daily papers of August last year, in the following terms: "X—, who came to Chambéry on Sunday, July 31st, to take up a position as engine-driver on the railway, was found the following morning, Monday, August 1st, standing before the open window of his room quite naked, and in a sleep so profound that no one was able to wake him; but after sleeping for three days and three nights, during which he took no nourishment, he awoke, and was able to take food." The newspapers added that the case was quite unique, that it stupefied all the men of science of the district, and that the man was in danger of dying of starvation—all of which statements, I need hardly say, lack foundation. This man had had supper the evening of July 31st with the people with whom he had taken a lodging. Next morning at seven his host found him in the situation described. His bed had not been used, so he had evidently gone to sleep the previous night immediately after undressing. He actually remained standing naked before the window until three in the afternoon, when the police were fetched, and a doctor. The latter describes him as standing upright, without any support, in the position of a soldier at "attention." His eyes were closed; there was tremor of the eyelids; the mouth was closed, and the jaws were clenched; his limbs were stiff and his body was very cold. He was then put to bed.

The following day, Tuesday, he was examined by another medical man, who found him still completely unconscious. There was no evidence of any sensorial activity, the reflexes were suppressed, and there was generalised cutaneous anaesthesia; there was no longer tremor of the eyelids; the limbs were moderately stiff, but not tetanically contracted; they were "plastic," that is, they remained in any position imposed on them, however unusual or difficult to maintain; there was trismus: pulse 50, breathing slow, easy, quiet; temperature normal; tint of skin normal; abdomen flat and supple.

During the seventy-two hours' sleep neither fæces nor urine were passed.

The awakening occurred spontaneously on the Wednesday. The restoration of the faculties of speech, locomotion, etc., took place gradually and slowly, and it was not till August 20th that he was considered well enough to return to Paris to the care of his father. He was 26 years of age, and had had no previous attack of the kind. He was described as an "emotional" subject.

Except for its comparatively brief duration, this case does not present features differing markedly from the others. In this case one would obviously fear the possibility of relapse; and since a man liable suddenly to pass into a profound slumber, from which he cannot be roused, would be a dangerous man as an engine-driver, and could not with a view to his own safety be allowed to work on a railway at all, one is not surprised to hear that the railway company had no further use for his services. But we must return to the question whether there is anything to be done in cases in which the sleep is indefinitely prolonged. This is the problem which presented itself to Dr. Farez when he was called to see the sleeper of Alençon, whose case I have already described, when her sleep had lasted forty days. Suggestion would apparently be useless, for in hysterical sleep of this kind the patient does not obey suggestions—it is questionable if they are even heard. Before suggestion can be efficacious, something must be done to modify the soil, to render the patient accessible to therapeutic suggestion. Gowers, writing of the pathology of trance and catalepsy (*Diseases of the Nervous System*, second edition vol. ii, p. 1036) says, "the phenomena, viewed in the light of the induced varieties, suggest a state of inhibition, or at least inaction, of the nerve-cells subserving the higher psychical functions, and that the morbid state spreads to lower centres in varying degree." Raymond also speaks of hysterical sleep as dependent on "the inhibition of certain cortical or sub-cortical centres of the brain." To overcome this state of inhibition, Farez's idea was (1) to change the pathological sleep into a narcotic sleep; (2) to change the narcotic sleep into a hypnotic sleep; (3) having induced the hypnotic sleep, to impose therapeutic suggestions.

To fulfil the first indication, he proposed to induce a state of hypo-narcosis by the inhalation of somnoform (a mixture of ethyl chloride, 60 *per cent.*, methyl chloride, 35 *per cent.*, and ethyl bromide, 5 *per cent.*), a method he had previously employed with signal success for increasing the suggestibility of patients ordinarily refractory to therapeutic suggestions. In the sleeper of Alençon, under the influence of inhalations of somnoform, the respiration, previously shallow and quiet, became profound, regular, and sonorous. Profiting by this state of hypo-narcosis, it was possible to suggest the hypnotic sleep; and in this state, again, to suggest an awakening. She awoke in fact, but she was unable to stand, and she spoke and swallowed with considerable difficulty. A process of functional re-education was then requisite, and this is described by Dr. Farez in a separate chapter of the *Revue de Psychothérapie*. Another essay is also devoted to the general question of the use of somnoform to promote suggestibility; to neither of these can I do justice in this brief epitome.

Gowers, in the short account he gives of "trance" and "catalepsy," says that their practical importance in medicine is small. This may be true, but it cannot be denied that their interest is very considerable. He defines them as "a state of sleep-like unconsciousness, from which the patient cannot be roused"; when accompanied by a peculiar plastic state of the limbs it is known as "catalepsy"; when this state is absent, we have to do with "trance" or "lethargy." Both states, as he points out, can be induced by hypnotism, and some of Charcot's cases at the Salpêtrière were the result of a pathological education, and "at times the process has passed beyond the region of disease into that of fraud." A feature that has attracted attention from the days of Galen downwards is the fact that "the extreme degree of trance may involve such a depression of the vital functions that the patient may seem to be dead."

Many details in the cases recorded in this paper will have shown the relationship between pathological sleep and the hysterical diathesis. Gilles de la Tourette went so far as to speak of pathological sleep as the "status hystericus"; and Féré remarks (*Twentieth Century Practice*, vol. x, p. 501), that it has been "of late interpreted as a larval form of the hystero-epileptic attack in which the somnolent phenomena assume an exaggerated importance." In view of our essential ignorance, not only as to the nature of hysteria, but even as to the nature of normal sleep, perhaps Féré's somewhat vague description is as near the truth as we can hope to get in the present state of our knowledge.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING of the Association was held at 11, Chandos Street, Cavendish Square, London, W., on Tuesday, 23rd May, 1911, under the presidency of Dr. John Macpherson.

Attendance: The President and the following sixty-three members were present: Drs. T. S. Adair, W. H. Bailey, J. L. Baskin, Fletcher Beach, C. H. Bond, D. Bower, P. E. Campbell, R. B. Campbell, J. Chambers, M. A. Collins, H. Corner, W. Dawson, A. De'Steiger, J. O'C. Donelan, T. Drapes, J. H. Earls, F. H. Edwards, F. A. Elkins, J. A. Ewan, L. O. Fuller, T. D. Greenlees, W. J. Haslett, H. Haynes, C. K. Hitchcock, R. D. Hotchkis, D. Hunter, J. B. Hyslop, W. S. Kay, H. Kerr, J. F. W. Leech, R. R. Leeper, W. H. C. Macartney, P. W. Macdonald, H. J. Mackenzie, W. F. Menzies, C. A. Mercier, J. Middlemass, A. Miller, C. S. Morrison, G. E. Mould, W. F. Nelis, H. Hayes Newington, M. J. Nolan, L. R. Oswald, E. S. Pasmore, M. E. Paul, Bedford Pierce, Nathan Raw, W. Rawes, H. Rayner, D. Rice, G. H. Savage, H. Percy Smith, J. B. Spence, T. E. K. Stansfield, R. H. Steen, R. C. Stewart, R. J. Stilwell, W. H. B. Stoddart, C. T. Street, D. G. Thomson, W. Vincent, and F. Watson.

Visitors: Drs. D. Hughes, F. Palmer, and Rawson.

Apologies for absence were received from Drs. Aveline, Bevan-Lewis, Benson Cooke, Caldicott, Dixon, Hamilton Marr, G. M. Robertson, James Scott, and others.

Attendance at previous Council meeting: The President, and Drs. T. S. Adair, C. Hubert Bond, David Bower, James Chambers, T. Drapes, R. D. Hotchkis, R. R. Leeper, G. E. Mould, H. J. Mackenzie, James Middlemass, P. W. MacDonald, H. Hayes Newington, L. R. Oswald, R. Percy Smith, W. H. B. Stoddart, D. G. Thomson, W. Vincent, and H. Wolseley-Lewis—total, 19.

MINUTES.

The minutes of the last meeting having already been printed and circulated in the Journal were taken as read and were duly confirmed.

The PRESIDENT intimated that at the Council meeting just held it was decided to co-opt Dr. Dawson, of Dublin, as President-Elect, in place of Dr. Drapes, who, to the great regret of the Council, had been compelled, owing to the state of his health, to relinquish the intention of becoming President. The Summer Meeting would be held in Dublin on the 13th and 14th of July. That would avoid any interference with the representative meeting of the British Medical Association, the overlapping of which meetings with those of the Medico-Psychological Association having been one of the matters discussed at the Edinburgh meeting last year.

THE DEATH OF DR. E. B. WHITCOMBE.

The PRESIDENT announced with very much regret the death of an old member of the Association, Dr. E. B. Whitcombe, of Birmingham, a former President of the Association and Lecturer on Mental Diseases in the University of Birmingham. Dr. Whitcombe's death occurred a few days ago. He was an assiduous and earnest member of the Association, a man who took the greatest interest in the training and education of nurses, and a man whose voice was always held in high esteem in connection with all those progressive reforms which of recent years had emanated from the Association. With the permission of the members, the Honorary Secretary would be requested to write a letter of condolence to Mrs. Whitcombe and the other members of his family.

Dr. C. MERCIER said, in supporting the President's remarks, that he did not think the proposal should be allowed to pass *sub silencio*. There were many members present who valued and loved Dr. Whitcombe. For himself he could say that the deceased member was one of his oldest friends in the Association. No one valued him more highly, though others were probably more intimate with him. There were many others who could support what the President had said, and he himself felt that he would like to add a tribute of praise to lay upon his grave.

Dr. SPENCE said he could not remain silent on the occasion, but his words would be few. Dr. Whitcombe was one of his oldest friends in the Association, and he looked back on his memory with the greatest affection and esteem. Dr. Whitcombe was not alone a devoted father and husband, but was also a very loyal and true friend. To the Association, as the President had already said, he was a great friend. He was an enthusiastic admirer of the work of the Association, and he devoted himself, whenever he had the opportunity, to carrying out what he considered was for the welfare not only of the insane but of those who worked for and with the insane.

Dr. SAVAGE desired to express his utmost sympathy with the proposition that members should convey their very sympathetic expression of the feeling of loss which they entertained. He had only just heard of the loss of Dr. Whitcombe. Every time he met him he had recognised the strength, the independence, and the kindly nature of the man. He was a man whom one felt one could trust, and all would sympathise with those who were left behind.

The resolution was agreed to.

ELECTION OF CANDIDATES.

The following eight candidates were unanimously elected as ordinary members: Babington, Elizabeth May, M.B., Ch.B. Edin., Assistant Medical Officer, West

Riding Asylum, Wakefield. (Proposed by J. Shaw Bolton, H. Devine, and T. Stewart Adair.)

Dykes, Percy Armstrong, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, County Asylum, Fulbourn, Cambridge. (Proposed by H. C. MacBryan, A. D. Thompson, and R. L. Rutherford.)

Forrester, Archibald Thomas William, M.D., B.S.Lond., M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, Leicester and Rutland Counties Asylum, Scarborough. (Proposed by Rothsay C. Stewart, T. Stewart Adair, and J. E. M. Finch.)

Jackson, David James, B.A., M.B., B.Ch. (R.U.I.), Assistant Medical Officer, County Asylum, Chester. (Proposed by G. Hamilton Grills, T. Stewart Adair, and Richard Kelly.)

Miller, Margaret Mair, M.B., Ch.B.Edin., Assistant Medical Officer, Northumberland County Asylum, Morpeth. (Proposed by T. W. McDowall, T. Stewart Adair, and Richard Kelly.)

Robinson, John Hargreaves, L.A.H.Dubl., Assistant Medical Officer, County and City Asylum, Powick, Worcester. (Proposed by G. M. P. Braine-Hartnell, H. Felix Fenton, and James H. Thomson.)

Moffett, Thomas James Simpson, M.B., B.Ch., B.A.O. (R.U.I.), Assistant Medical Officer, Cumberland and Westmorland Asylum, Garlands, Carlisle. (Proposed by W. F. Farquharson, J. R. S. Anderson, and T. Stewart Adair.)

Waldron, Ethel Annie, M.B., Ch.B.Birm., Assistant Medical Officer, West Riding Asylum, Wakefield. (Proposed by J. Shaw Bolton, H. Devine, and T. Stewart Adair.)

PAPERS.

Dr. EDEN PAUL read a paper entitled "Pathological and Prolonged Sleep" (see p. 540).

The PRESIDENT expressed the thanks of the meeting to Dr. Paul for a paper so full of interest—if he might say so, of weird interest.

Dr. NATHAN RAW read a paper entitled "The Treatment of Puerperal Insanity with Anti-streptococcic Serum" (see p. 506).

It was discussed by Dr. G. H. SAVAGE, Dr. MERCIER, Dr. EDEN PAUL, and Dr. MENZIES, to whom Dr. RAW replied.

During the afternoon a very successful and instructive series of cinematograph films was exhibited, embracing the following subjects: Circulation of Blood, The Amœboid Movement of a Leucocyte, Trypanosoma Lewisi, *Spirochæta pallida*, The Phenomenon of Agglutination, Sleeping Sickness, An Examination of the Stomach under X-rays, and The Axolotl.

In the evening the members dined together at the Café Monico.

SOUTH-EASTERN DIVISION.

THE SPRING MEETING of the South-Eastern Division was held by the courtesy of Dr. W. H. B. Stoddart at the Bethlem Royal Hospital on Tuesday, April 25th, 1911. Among those present were Drs. R. R. Alexander, W. H. Bailey, Fletcher Beach, G. S. Blandy, C. Hubert Bond, David Bower, John Brander, Ralph Brown, J. Chambers, G. Clarke, D. M. Cox, J. Francis Dixon, A. C. Dove, J. H. Earls, Francis H. Edwards, F. Ashby Elkins, F. C. Gayton, S. J. Gilfillan, W. Handfield Haslett, H. E. Haynes, J. W. Higginson, H. W. Heasman, G. H. Johnston, Robert Jones, H. Kerr, Mary E. Martin, A. S. Newington, Hubert J. Norman, Norman H. Oliver, R. N. Paton, G. E. Peachell, J. G. Porter Phillips, J. P. Race, W. Rawes, David Rice, E. F. Sall, G. H. Savage, G. E. Shuttleworth, J. G. Smith, T. E. K. Stansfield, R. H. Steen, James Stewart, R. J. Stilwell, W. H. B. Stoddart, F. R. P. Taylor, D. G. Thomson, T. S. Tuke, Fred. Watson, R. Whittington, and David Hunter (Hon. Secretary).

The visitors included the Rev. E. G. O'Donoghue, Drs. W. P. Cowper, J. M. Moll, L. M. Webber, and Hill Wilson White.

Apologies were received from Drs. Percy J. Baily, T. Drapes, R. H. Cole, T. D. Greenlees, and E. S. Pasmore.

The Hospital having been visited the members were entertained to luncheon

At the end of lunch Dr. G. E. Shuttleworth proposed a vote of thanks to Dr. Stoddart for so hospitably receiving the Division. Dr. Stoddart responded.

The meeting of the Divisional Committee was held at 2.45 p.m., Drs. Haynes, Peachell, J. G. Smith, and D. Hunter being present.

The general meeting was held at 3.15 p.m., Dr. W. H. B. Stoddart in the chair.

The minutes of the last meeting having been printed in the Journal were taken as read and confirmed.

The following members were elected to take office for 1911-12 :

Hon. Secretary of the Division.—Dr. David Hunter.

Representative Members of the Division on the Council.—Drs. David Bower, J. Francis Dixon, Frederick R. P. Taylor, and David G. Thomson.

The following gentlemen were elected ordinary members of the Association :

Reginald Inglis Douglas, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, St. Luke's Hospital, E.C.; Ronald MacDonald, M.B., Ch.B.Edin., Assistant Medical Officer, London County Asylum, Bexley; Jan. Marius Moll, Doctor in Arts and Medicine, Utrecht Univ., L.M.S.S.A.Lond., Clinical Assistant, Long Grove Asylum, Epsom; George Bassett Moon, L.R.C.P.&S.Edin., L.F.P.S. Glas., Assistant Medical Officer, Kent County Asylum, Maidstone; Henry Grattan Guinness Nelson, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Earlswood Asylum; Alfred Alexander Webster Petrie, M.B., Ch.B.Edin., F.R.C.S.Edin., Assistant Medical Officer, London County Asylum, Bexley; William Rees Thomas, M.D., B.S.Lond., Pathologist and Assistant Medical Officer, East Sussex Asylum; Leonard Mortis Webber, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Netherne Asylum; Hill Wilson White, M.B., B.Ch., B.A.O., N.U.I., Assistant Medical Officer, The Manor Asylum, Epsom; and John Henderson Will, M.B., Ch.B.Aber., Assistant Medical Officer, Essex County Asylum, Brentwood.

Drs. Stansfield, Dove, and Phillips were elected members of the South-Eastern Divisional Committee of Management, which now consists of the following :

<i>Retire in 1912.</i>	<i>Retire in 1913.</i>	<i>Retire in 1914.</i>
Dr. Pasmore.	Dr. Baily.	Dr. Stansfield.
Dr. Greenlees.	Dr. Haynes.	Dr. Dove.
Dr. Peachell.	Dr. Donelan.	Dr. Phillips.

The invitation of Dr. H. Kerr to hold the Autumn Meeting at the Bucks County Asylum, Stone, was unanimously accepted with much pleasure. October 4th, 1911, was fixed as the date of this meeting. The date of the Spring Meeting was fixed for April 23rd, 1912.

The Rev. E. G. O'DONOGHUE, chaplain to the hospital, gave a lecture entitled "The Story of Bedlam (1247-1911)" illustrated by numerous lantern-slides :

Bethlehem Hospital is the daughter of the oldest church in the world—the Church of the Nativity, Bethlehem, in the Holy Land. It is probably the oldest asylum in the east or west for the care and treatment of the insane. The daughter has suffered the fate of her mother in being plundered at intervals throughout her history. The plundering of the Church of the Nativity by one of its canons sent a Bishop of Bethlehem begging over England in 1247. In London he met one Simon Fitz Mary, an alderman, who gave him the land at present covered by Liverpool Street and its railway stations. There are indulgences extant which suggest that the mother and daughter houses of Bethlehem were used not only as hospices for the poor, but also for the treatment of the insane. However, the earliest date at which the hospital in Bishopsgate is known to have been at work among the insane is 1377. It would appear that the first supply of patients came from the "Stonehouse" in that year. This asylum, or religious house, occupied approximately the site of the Havelock Statue in Trafalgar Square. Stow had heard that a king of England (presumably Edward III or Richard II) disliked the presence of mad folk so near the mews of his falcons, and had therefore transferred them to Bethlehem Hospital. Various records exist which show that disaster early overtook the priory in Bishopsgate; plundering kings and citizens and servants seem to have brought it into poverty and disrepute for a hundred years. But the plundering carried on by Peter the Porter was on such an astounding scale that the City was able, in 1402, to secure a Royal Commission—the first of many. It appeared in the course of the inquiry that there were "six insane men" detained in the hospital; and an inventory was produced which discloses the possession and employment of

stocks, manacles, and iron chains in the treatment of them. As early as 1375, if not before, the king had seized Bethlehem, and the master was a royal chaplain who seldom came near the place. Property was filched away, valuable records were destroyed, and irreparable damage was done to the buildings. However, from first to last, individual citizens sent in bread and meat and beer for the staff and patients; and donations and collections reached the house from the City, and, indeed, from all over England. The hospital, moreover, had its benefactors—Gower, the predecessor of Chaucer, Mayor Gregory, who declared in 1458 that the patients "are cared for right well by the physicians," and kindly merchants, who desired that their legacies should be spent on food and clothing and other comforts. There are literary allusions to "Bedlam and its sights" as early as 1522 in More and Skelton, and after the sixteenth century the word and place haunt English literature. Dekker, Webster, Shakespeare, Ned Ward, the *Tatler*, and Hogarth, are among those who must have studied madness in the wards of Bedlam day by day. In 1547 Henry VIII sold the Hospital to the City for £113, but the City had originally received it by legal covenant into her protection as early as 1346. There is not much of interest to record from 1547 until 1619, when one Dr. Hilkiak Crooke was appointed master or keeper: this is the second instance of what we may call a *medical* superintendent. He was a court favourite, and a famous anatomist for his time, but turned out to be one of the worst of our Saracens. He came in as a great reformer, but for many years he only turned up on quarter days; and he ran a farm profitably in Essex to supply the hospital with vegetables and dairy produce. He fleeced the sheep so close that the poor steward was forced in self-defence to prey on the patients and their friends. It took two or three Royal Commissions to get rid of this precious pair. About 1660 things brightened up for Bethlem at the Restoration. A puritan sense of duty and the sympathetic geniality of the Cavaliers co-operated. In 1675 a beautiful palace after the French style was built by a friend of Wren on the present site of Finsbury Circus, and the patients left the gloom and filth of the first hospital for it. For 150 years, from 1675, large legacies were left to "New Bedlam" for the benefit of the insane, and the deplorable condition of the incurable was grappled with, not ineffectively. During this same period there was a succession of such visiting physicians as Allen, Tyson, and the Monro's—men of ability and sympathy—and the administration seems to have been free from the worst scandals of the seventeenth and nineteenth centuries. Indiscriminate visiting, however, went on, with the worst results, until 1775, or later, and the medical practice approved the purge, the emetic, the bleeding, the chains, and the straw.

Unfortunately the Moorfields, or second hospital, was built on the City ditch, and was built hastily and of bad materials. Part of it was in ruins in 1805, and in 1815 the patients were removed to the present hospital in Southwark. The state of things disclosed by the inquiry of 1814 into the death of a patient who had been in chains for fourteen years provoked great public indignation, and hastened the reforms which Pinel and the founders of the York Retreat advocated. In spite, however, of the fierce light to which Bethlem had been exposed, another Commission was found necessary in 1852 to investigate charges made against the nursing staff. It was not, perhaps, till after 1863, when the criminal lunatics were sent to Broadmoor, that the hospital began to shake off the obsession of her old traditions.

At the conclusion of the lecture, Dr. JAMES STEWART proposed and Dr. SAVAGE seconded a vote of thanks to the lecturer.

Dr. H. J. NORMAN read a paper entitled "Witchcraft, Demoniacal Possession, and Insanity" (see p. 475).

The CHAIRMAN (Dr. STODDART) expressed his appreciation of the interesting nature of the paper, and regretted that owing to the lateness of the hour discussion was impossible.

Dr. J. FRANCIS DIXON read a paper on "Some Instances of Sudden Deaths, with *Post mortem* Findings" (see p. 486).

The CHAIRMAN congratulated Dr. Dixon on his interesting paper and gave an account of several cases of sudden death in his own experience.

After the meeting Mrs. Stoddart kindly entertained the members to tea.

The members dined together in the evening at the Café Monico.

SOUTH-WESTERN DIVISION.

THE SPRING MEETING of this Division was held at the Somerset and Bath Asylum Cotford, near Taunton, on Tuesday, April 25th, 1911.

The following members were present: Drs. Ballard, Blachford, Graham, MacBryan, MacDonald, Monnington, Morrison, Morton, Nelis, Phillips, Pope, J. W. Rutherford, Soutar, Thomas, and the Hon. Divisional Secretary (Dr. Aveline).

Dr. MacDonald, having been voted to the chair, the minutes of the last meeting were read and signed.

Dr. J. V. Blachford was appointed Hon. Divisional Secretary.

Drs. MacDonald and Soutar were re-elected as Representative Members of Council.

Drs. Soutar and MacBryan were elected as Members of the Committee of Management.

The date of the Autumn Meeting was fixed for Friday, October 27th, 1911, and that of the Spring Meeting for Friday, April 26th, 1912.

The invitation of Dr. Blachford to hold the next meeting at the Fishponds Asylum was unanimously accepted.

It was resolved that in future nominations for the Secretaryship and the Representative Members should be made at the Autumn Meetings.

Dr. MACDONALD contributed a most interesting paper entitled "Notes on a Dream Narrative," which provoked a lively discussion.

Dr. J. W. RUTHERFORD read a paper on "The Treatment of Tuberculosis among the Insane by Tuberculin." He said:

Tuberculin is the name given to the toxic products of the tubercle bacillus when grown in fluid media.

There are several preparations, but those which I have used for the diagnosis and treatment of tubercular disease are P.T.O. and P.T.

P.T.O. (Perlsucht tuberculin original) being a bouillon culture of tubercle bacilli of the bovine type, rendered germ-free by passing it through a bacteria filter. It contains exotoxins only.

P.T. (Perlsucht tuberculin or old tuberculin bovine), being a glycerin-veal broth culture of a bovine strain of tubercle bacilli, evaporated to one-tenth of its bulk and then filtered through porous porcelain, the filtrate being a concentrated solution in glycerine of the extra-cellular toxins, together with some endotoxins, or their derivatives, extracted from the bacilli during the process of evaporation.

It is advisable to begin treatment with P.T.O. as it is less toxic than P.T.

In those who have definite physical signs in their lungs the initial dose is generally $\frac{1}{100000}$ part of a gramme, if the individual presents only such objective signs as loss of weight and cough a larger dose may be given, $\frac{1}{10000}$ part of a gramme, if no reaction takes place as a result of the initial dose, the dose is gradually increased every third day till $\frac{1}{100}$ part of a gramme has been given twice, and if no reaction has taken place the individual is presumed to be free from tubercular disease; if, on the other hand, a reaction has taken place, the dose is graduated according to the temperature.

The following is a rough guide regarding dosage: If temperature only reaches 99° F. the dose is increased in three days; if under 100° F. same dose repeated in three days; if under 101° F. same dose repeated in four days; if under 102° F. same dose repeated in five days; if under 103° F. same dose repeated in seven days; if over 103° F. reduce the dose.

The temperature, as a rule, drops to normal in early cases, or to its original height in more advanced cases within forty-eight hours; rarely it may remain high for seventy-two hours.

A dose of .1 P.T.O. having been reached the treatment is continued with P.T. till the maximum dose of 1 c.c. is given. It is important to bear in mind that a dose of .01 P.T. is more potent and gives a more marked reaction than a dose of .1 P.T.O. owing to the endotoxins which it contains.

It has always been my aim to produce a temperature ranging between 100° to 101° F., as I have found that such a temperature gives the best results and the patient bears the resulting reactions well.

By reaction I mean pyrexia, with its concomitant symptoms, anorexia, lassitude and headache.

Lupus and phlyctenular conjunctivitis are suitable conditions in which the local results of an injection may be observed.

After an injection the tuberculous tissues become swollen, and present all the signs of inflammation in severity corresponding to the pyrexia.

In tuberculosis of bones and joints marked swelling with local rise of temperature can be noticed in the part affected.

In the lungs it is not difficult to imagine a similar condition of affairs taking place, as after an injection the physical signs become more marked, and often where no physical signs could be detected an injection helps one to locate the region affected.

Before giving an injection it is absolutely essential that the skin should be aseptic; this can easily be done by rubbing the region with an alcoholic solution of biniodide (1 : 500); the injection having been given, a little collodion is painted over the puncture made by the needle to prevent infection from the sleeve or bed-clothes.

At the site of inoculation, within twenty-four hours a local inflammation takes place, such a condition being called the over-sensitiveness of the tissues, and is more marked in early cases; as immunity proceeds this over-sensitiveness becomes less marked, and by gradually increasing the dose rapidly disappears.

One c.c. of fluid is the most satisfactory quantity to inject at a time, as there is generally a leakage of a couple of minims, especially when the arm has become infiltrated owing to repeated injections, and if the quantity injected be less than 1 c.c. such an escape is of vital importance.

During the past year I have injected fifty-five patients with tuberculin, most of them being demented and maniacal cases, so that the physical examination in the majority of the patients was either negative or not satisfactory, the injections being given as the patients presented such objective signs as loss of weight, cough, and pyrexia.

Of the 55 patients injected 23 were "cured," 3 were not improved, 11 are still undergoing treatment and improving, 3 are still undergoing treatment and at present it is too early to give an opinion, 5 did not react, 9 reacted but injections were discontinued, and 1 was improving but died from tubercular nephritis.

By "cured" I mean that each patient had one or more courses of treatment (in some cases the maximum dose was reached), and having ceased to react for some time the injections were discontinued, the patients having gained in weight and all objective signs having disappeared.

In those who permitted themselves to be examined the physical signs also had disappeared.

Of the eleven still undergoing treatment and improving, all of them have increased in bodily weight; they have no pyrexia, except after an injection, their coughs are not so troublesome, and the expectoration has diminished, and in those who will permit themselves to be examined the physical signs are improving.

One of these cases was injected for tuberculosis of the knee-joint; she is seventy years of age, and when eighteen had her right leg amputated, probably for tuberculosis of the ankle. Prior to injections the knee-joint was fixed in a semi-flexed position, the contour of joint being completely lost, the joint being white, smooth, and rounded; also the temperature of joint was raised.

The patient would hardly permit the joint to be touched, and cried out with pain on attempting to move it. She had an evening temperature of 99° to 100° F.

The injections were started on November 19th, 1910, and have been regularly continued since. During the past two months the joint has diminished in size, except after an injection, when the swelling becomes more marked, but gradually subsides again within twenty-four to forty-eight hours.

At present she has no temperature except when injected, and she permits slight passive movement, and even will move the joint of her own accord.

Of the three cases not improved, all died. Two of them prior to injections were in a very advanced state, objective signs being, great loss of weight, severe night-sweats, and temperature varying from 100° to 101° F. Physical signs: The greater portion of both lungs being involved in each case, and one patient had signs of a large cavity at apex.

Dr. Rutherford here described the clinical course and symptoms of his cases and the *post-mortem* appearances in those who died.

"The only observations I can make on the results of my limited experience are, that tuberculin as a means of diagnosis is invaluable, especially in early cases; that it can do no harm in small doses if the individual is free from tuberculosis. On the other hand, if the patient has tubercular disease, a distinct improvement will take place if the injections are continued, due precautions regarding dosage and temperature being observed.

"Regarding tuberculin as producing a complete cure, I am at present not in a position to give a definite opinion, but so far, in those who had had one or two courses of injection, 85 *per cent.* have improved. This, I consider, is most satisfactory, when the mental state, low vitality, and ages of the patients injected are taken into consideration."

At the conclusion of the paper a number of cases so treated were shown both by the reader and by Dr. Graham.

The lateness of the hour precluded the reading of any further communications, and the meeting was then closed.

NORTHERN AND MIDLAND DIVISION.

THE SPRING MEETING of the Northern and Midland Division was held at the City Asylum, Nottingham, at the kind invitation of Dr. Powell, on Thursday, April 27th, 1911.

Dr. Powell presided.

The following seventeen were present: Drs. J. P. Cahir, H. Devine, A. I. Eades, W. J. A. Erskine, J. A. Ewan, W. F. Farquharson, C. L. Hopkins, R. Legge, H. J. Mackenzie, S. R. Macphail, J. Middlemass, G. E. Mould, B. Pierce, E. Powell, R. C. Stewart, W. Vincent, and T. S. Adair, and four visitors: Drs. W. R. Allen, D. Bower, J. H. Johnston, and W. T. Rowe.

The minutes of the last meeting were read and confirmed.

A ballot was taken for the following two candidates as ordinary members of the Association, and they were declared duly elected:

Wellesley R. Allen, M.B., B.Ch., B.A.O., Junior Assistant Medical Officer, City Asylum, Nottingham. Proposed by Drs. Powell, Erskine, and Adair.

James Moir Mathieson, M.B., Ch.B., Assistant Medical Officer, Wadsley Asylum, near Sheffield. Proposed by Drs. Kay, Vincent, and Adair.

Dr. T. S. Adair was re-elected Secretary to the Division, and Drs. G. E. Mould, J. Middlemass and H. J. Mackenzie were re-elected Representative Members of Council for the Division for the ensuing twelve months.

The arrangements for the Autumn Meeting, not being complete, were left to the Committee and Secretary.

The kind invitation of Dr. Farquharson to hold the Spring Meeting at the Garlands Asylum, Carlisle, was accepted, and the date fixed for Thursday, April 18th, 1912.

Dr. ERSKINE read his paper on "Asylum Dysentery" (see p. 492).

An interesting discussion took place in which Drs. POWELL, VINCENT, MACPHAIL, LEGGE and others took part. Some doubt was raised as to the relationship between influenza and colitis. A query was put forward as to whether the turning up of new soil in digging foundations had any connection with outbreaks of colitis.

Dr. DEVINE then read his paper entitled, "The Pathogenesis of a Delusion" (see p. 458).

A discussion followed in which a number of members took part.

Dr. ERSKINE read an account of a case of self-inflicted abdominal injury, in which a female patient, *æt.* 43, suffering from melancholia, took a pair of scissors into the lavatory and made a large wound in her abdomen, bringing out part of the large intestine and most of the omentum. She made a good recovery from the injury.

Dr. ALLEN gave some notes of a case of "Gangrenous Emphysema of the Thigh" occurring in a general paralytic.

A very pleasant and instructive meeting was brought to a close by a hearty vote of thanks to Dr. Powell and the Committee of the Asylum, proposed by Dr. Pierce and seconded by Dr. Middlemass.

SCOTTISH DIVISION.

A MEETING of the Scottish Division of the Medico-Psychological Association was held in the Hall of the Royal Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow, on Friday, March 17th, 1911.

Present: Drs. Bruce, Carswell, Easterbrook, Fraser, Havelock, Hotchkis, Carlyle Johnstone, Kerr, Martin, Marshall, Muirhead, John Macpherson, T. C. Mackenzie, Macdonald, McRae, Ivy Mackenzie, Neill, Oswald, Shaw, Steele, Sturrock, Taylor, Urquhart, Watson, Yellowlees, and R. B. Campbell (Divisional Secretary).

There were also present as guests: Dr. A. K. Chalmers, Medical Officer of Health, Glasgow; Dr. Roberts, Medical Officer, School Board; and Dr. W. G. Dunn.

Dr. John Macpherson, President of the Association, occupied the chair.

The minutes of last meeting were read and approved, and the Chairman was authorised to sign them.

Apologies for absence were intimated from Drs. Clouston, Keay, Marr, and G. M. Robertson.

Drs. Hotchkis and G. M. Robertson were unanimously elected Representative Members of Council, and Dr. R. B. Campbell was elected Divisional Secretary.

Dr. C. C. Easterbrook was nominated as Examiner for the Certificate in Psychological Medicine.

The following candidates, after ballot, were admitted to membership of the Association:

Anna Lilian Muncaster, M.B., Ch.B.Edin., Third Assistant Medical Officer and Pathologist, Edinburgh District Asylum, Bangour Village. Proposed by Drs. Keay, Steele, and K. D. C. Macrae.

William Thomson Munro, M.B., Ch.B.Edin., Assistant Medical Officer, Argyll and Bute District Asylum, Lochgilphead. Proposed by Drs. Shaw, T. C. Mackenzie, and Campbell.

John C. Simpson, M.B., Ch.B.Edin., Assistant Medical Officer, District Asylum, Inverness. Proposed by Drs. T. C. Mackenzie, Shaw, and Campbell.

Henry Howard Roberts, M.D., 1, Wemyss Place, Haddington. Proposed by Drs. Campbell, G. M. Robertson, and Keay.

Dr. URQUHART directed the attention of the Division to a recent decision in the Court of Session regarding the authority to be obtained in order to hold a *post-mortem* examination, and pointed out the difficulties which might arise in an asylum in consequence of this decision. He proposed that this important matter should be remitted to the Business Committee, with full powers to take the opinion of counsel as to the proper legal authority to be obtained in order to hold a *post-mortem* examination, and to report to the next Divisional Meeting. This was seconded by Dr. Watson, and unanimously agreed to.

Dr. CARSWELL read a paper on "Insanity and Physical Deterioration: a Discussion of Some Aspects of the Occurrence of Insanity in a Large Industrial Community," which led to a most interesting discussion, which was taken part in by Drs. MACPHERSON, URQUHART, CHALMERS, CARLYLE, JOHNSTONE, ROBERTS, and DUNN.

Dr. CHISLETT was prevented from being present at the meeting, and his paper on "Syphilis and Congenital Mental Deficiency" was read by Dr. Ivy Mackenzie, and was afterwards discussed by Drs. MACPHERSON, HAVELOCK, MUIRHEAD, MACDONALD, BRUCE, EASTERBROOK, and T. C. MACKENZIE.

A vote of thanks to the President for his conduct in the Chair concluded the business of the meeting.

The members afterwards dined together in the Central Station Hotel.

IRISH DIVISION.

THE SPRING MEETING of the Irish Division took place at the Richmond Asylum, Dublin, by the kind invitation of Dr. Donelan, on Thursday, April 27th, 1911, at 4 p.m.

Previous to the meeting the members were conducted over the new hospital and the new buildings specially designed for the harmless class of patients, which met with general approval, and they were then entertained at luncheon by Dr. Donelan.

Before the formal proceedings commenced, the retiring Divisional Secretary, Dr. Dawson, received a handsome presentation in the form of a silver salver and a large silver-mounted ivory paper-knife. The former bore the inscription: "Presented to W. R. Dawson, Esq., M.D., F.R.C.P.I., by the Members of the Irish Division of the Medico-Psychological Association of Great Britain and Ireland, in recognition of his valuable services as Divisional Honorary Secretary, 1902-11," and around the inscription were engraved the autograph signatures of over forty members of the Division. The presentation was made in appreciative terms by Dr. T. Drapes, President-Elect of the Association, and Dr. Dawson returned thanks for the gift and the kind feeling which prompted it.

The meeting proper followed, Dr. Drapes being voted to the chair, and there were also present—Drs. C. E. Hetherington, J. A. Oakshott, M. J. Nolan, J. O'C. Donelan, A. D. O'C. Finegan, J. M. Redington, T. A. Greene, R. R. Leeper, H. M. Cullinan, J. Patrick, James J. Fitzgerald, F. C. Ellison, E. L. Fleury, H. M. Eustace, W. N. Eustace, and W. R. Dawson (Hon. Sec.). Apologies were received from Drs. T. P. Conlon, F. O'Mara, J. C. Martin, A. A. Burrell, G. Revington, J. Mills, F. E. Rainsford, W. Graham, E. D. O'Neill, and P. J. Dwyer.

The Minutes of the last Ordinary Meeting of the Division, and those of the Special Meeting on February 9th, 1911, were read, confirmed and signed, and the Secretary reported on matters arising therefrom.

A letter from the Inspectors of Lunatics was read, explaining that they have no legal powers to lay down any uniform scheme fixing the leave of attendants in District Asylums.

A letter from the Divisional Hon. Secretary was read, resigning, in addition to his Secretaryship, membership of a number of Divisional Committees, whereupon the following resolution was passed unanimously:

"Resolved: That we, the Members of the Irish Division of the Medico-Psychological Association of Great Britain and Ireland, while deeply regretting Dr. Dawson's official severance from this Branch, hereby desire to express our great appreciation of the splendid services rendered by him for the last nine years as Divisional Secretary, and, at the same time, to convey to him our congratulations on his elevation to one of the highest positions in the Irish Lunacy Service."

Dr. Dawson briefly expressed his thanks.

The following was ballotted for and declared unanimously elected an ordinary member of the Association: John Vincent O'Hagan, L.R.C.P.I., L.M., L.R.C.S.I., Second Assistant Medical Officer, Down District Asylum, Downpatrick. (Proposed by Drs. M. J. Nolan, J. Cotter, and W. R. Dawson.)

Dr. R. R. Leeper was unanimously elected Divisional Hon. Secretary, and Drs. T. Drapes and M. J. Nolan Representative Members of Council for the ensuing session, and it was decided to recommend Dr. J. O'C. Donelan for the post of Examiner.

The following dates were fixed for the meetings of the Division during the ensuing Session, *vis.*, Thursday, November 2nd, 1911; Thursday, April 18th, 1912; and Thursday, July 4th, 1912.

The desirability of some mark of appreciation of Dr. Courtenay and his work as Inspector of Lunatics was then brought before the meeting, and eventually it was unanimously resolved that it should take the form of a presentation. The following were appointed to form a committee to give effect to this resolution, *vis.*, Drs. Drapes, Ellison, James J. Fitzgerald, W. Graham, Leeper, Oakshott, and O'Neill, with Drs. Hetherington and Nolan as Secretaries, and Dr. Donelan as Treasurer; and Dr. Hetherington undertook to consult Dr. Courtenay as to the form of the presentation. Meanwhile it was unanimously decided that a resolution of appreciation and regret be sent to Dr. Courtenay:

"The Members of the Irish Division of the Medico-Psychological Association, in meeting assembled, desire to place on record their sense of the great value of Dr. Courtenay's services during his tenure of the office of Inspector of Lunatics, and of his unceasing efforts to improve the condition of the insane in Ireland.

They deplore the loss sustained by the lunacy Administration in his retirement, and would assure him of their warmest good wishes for his welfare."

A Reception Committee, consisting of the Dublin members present, *viz.*, Drs. Donelan, H. M. Eustace, Cullinan, and Redington, with the Divisional Secretary, was appointed to assist the President-Elect in arranging for the Annual Meeting.

Dr. NOLAN then introduced a discussion on the Asylums Officers Employment, Pensions and Superannuation Bill, presented by Lord Wolmer, which he thought removed all flaws in the recent Act. The sixty hours' per week limit of work would, however, involve a large addition of staff, and a seventy hours' week, with payment for overtime, had been accepted by the attendants themselves at a recent Convention, which had resulted in the formation of an Irish Division of the Asylum Workers' Association. As his action had been misrepresented he asked that a letter written by him to the Convention be read. This was done, and after some general discussion it was unanimously decided that copies of the letter be sent to all the Resident Medical Superintendents of Irish Asylums, in the hope that this might lead to the formation of local branches of the A. W. A. where not already in existence.

Owing to the lateness of the hour and the absence of Dr. Dwyer it was agreed to postpone his paper, and the meeting terminated with a hearty vote of thanks to Dr. Donelan.

In the evening the members were entertained by Dr. Dawson at a farewell dinner at the Shelbourne Hotel.

PROVISION FOR PERSONS OF UNSOUND MIND IN THE COUNTY OF LEICESTER.

By ROTHSAY C. STEWART, M.R.C.S.

A BRIEF history of the provision made for the care of the poorer insane in the county of Leicester may be of some interest; my remarks will chiefly refer to the class termed, officially, "Private," and whose means were limited.

Early in 1700 a Dr. Arnold kept a private asylum in West Bond Street, Leicester, where there was an underground passage across the narrow street by which patients could reach a walled garden opposite for exercise. Another one existed in Belgrave Gate under the care of Dr. Hill, and a third is said to have existed in Humberstone Road, on the east of the town.

The Infirmary was opened in 1771, and in 1781, on receipt of legacies of £1,000 from Mrs. Topps and £200 from Mrs. Ann Wigley, a south-west wing was added for the reception of patients who could not afford to pay the fees of a private asylum.

This was, I believe, the origin of what is called "The Charity." It was supported by voluntary contributions, benefactions from various noblemen and gentlemen in the county, and was managed by a committee elected annually by the subscribers from their own body. For many years the poorer class of the insane was provided for in this way, and it was not till 1837 that a public asylum was erected.

The building was designed to accommodate 104 patients at a cost of £17,948 19s. 1d., and the funds were helped by the aid of bazaars and balls. The ball seems to have been an annual function, for in the report of 1849 occurs this sentence: "The decease of Her late Majesty, the lamented Queen Adelaide, prevented the holding of the Annual Ball." By arrangement between the justices and the subscribers, the Charity was removed from the infirmary and attached to the county asylum, the necessary expenses upon buildings, repairs and maintenance to be defrayed in equal proportions. In 1839 the Charity formed a nucleus of the capital fund by investing £1,665 1s. in new 3½ *per cent.* Consolidated Bank Annuities.

There were four classes of patients, the county, out-county, Charity and independent, which latter paid a much larger sum than any of the others.

As the number of pauper and criminal lunatics increased, a modification of the terms of the agreement was made in 1846, when the county of Leicester was

called upon to pay four-fifths and the Charity one-fifth of the expenses, but two years after, 1848, Rutland joined Leicester, and a further alteration was made in the agreement by which Leicester contributed seven-tenths, Charity two-tenths, and Rutland one-tenth.

As time went on the county patients were on the increase, while those on the Charity decreased, so that it was found necessary again to equalise matters by a fresh agreement in 1870. By consent of the Home Secretary, confirmed by the Court of Chancery, it was agreed that no private patients should be received save on the nomination of the subscribers, or in such manner as the Committee of Visitors, appointed by such subscribers, should determine on, and that such private patients should be 50 in number and no more (25 males and 25 females), who should be respectively kept in wards separately, as far as medical superintendence would allow of, from the pauper patients.

In consideration of the limitation in the number of patients, the interest of the Charity should thenceforth be considered to be £5,500, and that it should not be called upon to contribute to the erection of new buildings, or other improvement of the estate, but that the expenses should be borne in the following proportion: Leicester eight-ninths, Rutland one-ninth, and the Charity a share of the expense of keeping up the furniture and repairs in the proportion which the number of weeks spent by the Charity patients during the year bears to the number of weeks spent by the whole body of patients.

These terms held good till 1908, when the New County Asylum at Narborough was opened, and the position the Charity now holds is as follows: The business is conducted by a Chairman and a Committee of five members, elected annually by the subscribers; there are two separate blocks of 30 beds each. All patients must be admitted by consent of the Committee, and 50 of these must belong to the County of Leicester or Rutland, but the other 10 may come from districts outside the two counties, and for them a slightly increased charge would be made. The charge for each patient is carefully considered by the Committee, and naturally varies, according to the position of the payee; the admission is for six months, and at the end of that term the case is re-considered as to terms of payment, etc.

Though it entails more work in administration, I am sure the provision of separate blocks for this class of patient in the present day serves a most useful purpose, and should be a part of every county or borough asylum.

OBITUARY.

SIR GEORGE PLUNKETT O'FARRELL, M.A., M.D.

It is with great regret that we record the death of Sir George Plunkett O'Farrell, M.D., who passed away at his beautiful residence—The Croft, Oxshott, Surrey—on the morning of Thursday, June 22nd. He was ill for only three days, and the end came through cardiac failure. He had been occupied in making arrangements for a garden party in the interests of the After-Care Association to be held at his place on July 5th. While thus engaged he caught a chill, to which, however, he paid little attention. The Monday preceding his death he spent in London. On his return his temperature was found to have risen. That night he was unable to sleep and gradually he grew weaker till Thursday morning, when he passed away in the presence of his family.

George Plunkett O'Farrell was born in Boyle, Co. Roscommon, in 1845. He was the son of Dr. Harwood O'Farrell, J.P., an eminent physician who enjoyed a large practice in the west of Ireland. Young O'Farrell had a brilliant career in Trinity College, Dublin, graduating as First Senior Moderator in Experimental and Natural Science. He gained First Class Honours with his M.D. degree, and was elected to the high distinction of the Travelling Medical Studentship. He had, therefore, the great advantage of studying under the best medical teachers of his time on the Continent, and incidentally became an excellent French scholar. On his return to England he received an appointment to St. Peter's Hospital in London, which he held for some time. Later he returned to Boyle, assisted his father, and ultimately succeeded to his practice. He continued to work there for some years, when he was offered and accepted the position of Medical Inspector

under the Irish Local Government Board. At great personal sacrifice he accepted this appointment. His work as Medical Inspector revealed such striking ability that he was appointed a member of the Irish Prisons' Board and Inspector of Reformatories and Industrial Schools. It was while holding this office that he came under the notice of the then Chief Secretary for Ireland, Mr. Arthur J. Balfour, who, impressed by O'Farrell's remarkable powers of observation as well as by his strength of judgment and tactful handling of men with whom he had to deal, offered him the post of Commissioner of Control and Inspector of Lunatics. He had as a colleague Dr. E. M. Courtenay, an expert in mental diseases and in asylum administration, formerly the Resident Medical Superintendent of the District Lunatic Asylum, Limerick, and Hon. Secretary of the Irish Division of the Medico-Psychological Association. The friendship that existed between these two men during the twenty years they worked together was interrupted only by death. In his new sphere of labour he found what was to be the vocation, and one might say the passion of his life. His innate love of humanity, his gentleness of nature, his desire to help the weak and the physically or mentally deficient, in a word, the fine and noble instincts of a singularly lofty nature, found in his new activities full scope for their exercise. If congenial work, and plenty of it, be the true condition of happiness and success, then we may account O'Farrell to have been among the most fortunate of men. His position made him the intermediary between the Government and the local authorities of the district asylums. He was at once the official executive of the Government and the guardian of the rights and interests of the asylum officials and patients. At the passing of the Local Government Act of 1898, which revolutionised the Irish Asylum Administration, his skill and knowledge assisted in effecting the transition from the old to the new order with nothing but benefit to all concerned. As inspector it was his duty to present annual reports to the Lord Lieutenant, the Lord Chancellor, and the House of Commons. Buried in blue-books are to be found valuable discussions from his pen on such problems as the causation, the increase, the treatment of insanity. When a Royal Commission was appointed on the Care and Control of the Feeble-minded O'Farrell was chosen to represent the interests of Ireland. He discharged his task to the admiration of all his co-commissioners. He played an important part in furthering other legislative enactments on behalf of the more adequate treatment of the mentally afflicted. A knighthood was conferred upon him in 1899.

Under the age-clause he retired in July, 1910, much to the sorrow of all who had been officially connected with him. Some idea of the esteem in which he was held by representatives of all the official classes may be gained from the fact that he was the recipient of a compliment, unique perhaps in the history of the service. Under the presidency of the Lord Chancellor of Ireland an assemblage, consisting of the foremost men of all departments expressed their high appreciation, by gifts and words, of his eminent services in the interests of better asylum administration, and of a more scientific care of the insane. This was followed a few months later by a remarkable tribute to his personal as well as official virtues by all ranks of the Irish Lunacy Service who had served under him.

Socially he was the most charming of men. He was a welcome guest at the historic re-unions held at the house of the late Lord Justice Fitzgibbon, where assembled such cultured spirits as John Morley, W. S. H. Lecky, Lord Randolph Churchill, and Father Healy.

Since his retirement he spent a good deal of his leisure at the Garrick Club. His favourite pastimes were bridge and golf.

He married Miss Amy Mayhew, of Chester Square, London, in 1878, who survives him. There also survive one son, Ernest, a lieutenant in the 87th Royal Irish Fusiliers, and one daughter, the wife of Major Clark, D.A.A.G., Headquarters Staff.

Such are the main points of his career. It is, however, difficult to convey to those who did not know him an adequate conception of his personality or of the many-sidedness of his attainments. He was a remarkable illustration of that particular type of greatness which compels a not very robust body to do the will of the intellect. He set an example to his subordinates of unwearied industry and of devotion in a finely idealistic spirit to the duties committed to him. He recognised only an aristocracy of service; with him, he was greatest man who served

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most his fellow men. He gave not his time only or his thought but himself to the public weal. Some words of the address already referred to presented to him by the officials of the Irish Lunacy Service show the impression he made upon those fitted to pass judgment: "To our profound regret you now pass from the stage of official life, though we are glad to think your 'eye is not dimmed nor your natural force abated.' But your work will *not* pass. It will remain to work an epoch in the history of the treatment of the Irish insane and to act as a stimulus to the men of the newer generation to emulate your example of unselfish consecration to high ideals of public duty and the national well-being. When the history of asylum administration in Ireland comes to be written your place among the greatest of public servants in this department of the King's Government is secure and no man can take it from you."

JAMES RORIE, M.D.

Born April 4th, 1838. Died April 3rd, 1911.

DR. RORIE was born in Arbroath and came of a Highland ancestry. His grandfather fought at Culloden on the losing side, and his father had dealings with Rob Roy. His life cannot be understood without reference to the more than half Celtic element in his blood, and his Forfarshire upbringing. He had a distinguished career as a student in Edinburgh University, taking many prizes, and finishing his student course by receiving that coveted distinction of a gold medal for a thesis containing original work on the sympathetic system of nerves. As a student he was a quiet, studious, obstinate, ambitious man, whose opinions, when formed, were adhered to against all odds, and whose prejudices were strong and picturesque, like those of most men of Celtic races. The element of fight and opposition added zest to his life. He was not easy to move by mere argument and logic. He liked metaphysics and philosophy, and that side of his mind influenced all his subsequent scientific work and life. His self-confidence made him somewhat independent of personal friendships. After graduation he at once obtained the appointment of Assistant Physician to the Dundee Royal Asylum under Dr. Wingett, who died within a year, and Dr. Rorie was appointed his successor in 1860, at the unprecedentedly early age of twenty-two. Many of his friends thought that it would have been better for him if he had had more experience and had seen more of other institutions and other men and their work before he attained so responsible a position. He threw himself into his work, however, with a dogged zeal and an infinite conscientiousness. He joined the Medico-Psychological Association in 1860, and was, at his death, its senior member in Scotland, and the fourth on the list of the Association. He was appointed the Secretary of the Association for Scotland in 1861, and held that position till 1869, doing the work to the satisfaction of everyone. The old Dundee Asylum was in the middle of the town, its construction was antiquated, and its grounds quite insufficient. Dr. Rorie at once set himself to the education of his Board and the public of Dundee so that they might take steps to procure a new site and build a new institution on modern principles. In due time the magnificent site at West Green overlooking the river Tay was purchased. The present Mental Hospital was in due time built there, under Dr. Rorie's advice and superintendence. He devoted his whole time and energy to this work for several years. As its Physician-Superintendent he was a painstaking and hardworking official. He spent more time in his wards than most men, he knew his patients thoroughly and took all their cases himself, going minutely into the details of their clinical symptoms, mental and bodily. His individuality was so strong that he tolerated advice and opposition badly. He differed with the Dundee Parochial Board as to their policy of removing the incurable patients to the lunatic wards of the town poorhouse, and was unyielding in his opposition, so bringing worry on himself that a more facile man would have avoided. He had high ideas as to the accommodation and treatment of the insane, curable or incurable, and unflinchingly opposed anything that fell short of those ideas.

Dr. Rorie's general mental character was a strong one. He was self-reliant and silent; he thought his own thoughts and came to his own conclusions, he lived for his work, and had the good of his patients and the success of his institution always

at heart. He was ambitious for the progress of psychiatry, which he looked at largely—too largely some would say—from the psychological side. His was not an agile mind. He was a successful lecturer on mental diseases to students in his school. He devised a classification of mental diseases, and drew up a synopsis of his lectures for his class implying much original thought. He was also a keen naturalist, as were most of his fellow-students in Edinburgh, and was President of the Dundee Naturalist's Society for two years. He published papers on the "Sympathetic System," on the "Supra-renal Capsules," on the "Treatment of Hallucinations by Electricity," and he took a great interest in lunacy legislation.

He resigned his position as Physician-Superintendent of the Dundee Royal Asylum in 1903, but kept on his lectureship in the medical school till his death, working hard in his laboratory at research work. To his friends he was always quietly genial and courteous. He belonged to the "Glassite" form of religion and was an Elder in its Church. He leaves a widow and two sons, one of them being in our department of medicine.

EDMUND BANCKS WHITCOMBE.

THE death of Edmund Bancks Whitcombe after a comparatively brief illness (pneumonia following an attack of influenza) deprives the Association of an old and enthusiastic worker in the cause of the insane, one who had taken an active part in the development of the Association, and who was always to the fore in promoting those reforms which, although now that they have been accomplished are regarded as commonplaces, were in the seventies and early eighties of the last century looked upon by many as revolutionary in their tendencies, and those who were active in their propagation as men scarcely to be more than tolerated in their meddlesome interference with the condition of things which then existed.

Born at Cleobury Mortimer in June, 1843, he qualified M.R.C.S.Eng. and L.S.A. Lond. in 1868, and after a brief experience in private practice as assistant to the late Mr. Burdett, he was for about one and a half years Medical Officer of the Birmingham Workhouse, and was appointed Assistant Medical Officer at the old Birmingham Asylum, Winson Green, in 1871. He obtained the post of Medical Superintendent at the East Riding Asylum, Beverley, in 1878, and returned to Birmingham as Chief in 1882, dying there on May 13th, 1911. His father and grandfather before him had been doctors, and he married in August, 1878, into a medical family, as his wife, who (with one daughter and four sons) survives him, was a daughter of the late Professor Clay, at one time a leading practitioner in Birmingham.

Dr. Whitcombe became a member of the Medico-Psychological Association in 1882, and filled the office of President with much acceptance in 1891 when the annual meeting was held in Birmingham. The foundation of the great Midland University led to his appointment as one of its first professors, and the honorary degrees of M.Sc., M.B., and B.Ch. were conferred on him as further marks of the esteem in which he was held by those who were intimate with his professional and other valuable work in the city of his adoption. He was a pioneer in the training of asylum nurses and attendants, and much of the credit of initiating the present system of examination is due to his early work in this direction, while his able advocacy of the more rational and liberal treatment of the insane in asylums has been fully recognised by all who have had an opportunity of either hearing him express his views on the subject or of seeing the changes carried out by him at Winson Green with the object of promoting the treatment of the mentally afflicted on hospital lines as far as that is possible.

The administration of his own asylum was a source of the most intense interest to him, and the success which attended his work there and in connection with lunacy matters generally in the great city to which he was so much attached was recognised in January, 1907, upon the completion of his twenty-fifth year of office as Medical Superintendent, by a dinner which was given to celebrate the event, and by presentations made to him by the Asylum Staff, and by the members of his Committee, who were so well acquainted with his work, and who valued his sturdy independence of character and his devotion to the duties of his, at times, trying position.

In private life he was a devoted husband and father, a most faithful and generous

friend, hospitable in an unostentatious but genuine fashion, and no one who needed sound advice had cause to regret an appeal to him for his counsel, as he was particularly cautious, clear-sighted, and impartial in his judgment of men and affairs. He was a keen horticulturist, and the results he obtained in the not very promising atmosphere of the great manufacturing city would have done credit to places more favourably situated for the growth of the flowers and garden produce which he was so successful in cultivating.

A large attendance of men, among whom were many connected with the government of the city as well as members of his own profession, assembled on a bright spring afternoon in the beautiful cemetery at Brandwood End to pay a final tribute of respect to one who had never failed a friend, who was absolutely free from what is now designated as "side," and who had died just as it would have been his wish to do, in the midst of his work, with his mental power unabated, and in the house which he had occupied during many years of a strenuous, useful, happy and unselfish life.

SOCIETY OF PSYCHIATRY OF PARIS.

In our last number, in which the names of those who had been elected Corresponding Members of the Société de Psychiatrie de Paris were given, we find that we omitted the name of Dr. Fletcher Beach, of Coulsdon, who has also been elected a Corresponding Member.

THE LIBRARY OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Library is open daily for reading, and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from the Lending Library belonging to that firm should any desired book not be in the Association's Library.

The following books have recently been added to the Library:

Tanzi.—*A Text-book of Mental Diseases* (translated by Ford Robertson and Mackenzie).

Forel.—*Hypnotism*.

Clouston.—*Unsoundness of Mind*.

The Library Committee is indebted to Dr. R. Percy Smith for the presentation of the following books:

Denkschrift zur Errichtung der Kreis-Irrenanstalt Ansbach (1904)

Bresler.—*Deutsche Heil- und Pflegeanstalten für psychische Kranken in Wort und Bild* (1910).

Application for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos St., Cavendish Sq., W. Other communications should be addressed to the undersigned at Long Grove Asylum, Epsom.

BERNARD HART,

Hon. Secretary, Library Committee.

NOTICES OF MEETINGS.

MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Seventieth Annual Meeting of the Association will be held on Thursday and Friday, July 13th and 14th, 1911, in Dublin, under the Presidency of Dr. William R. Dawson.

On Wednesday, July 12th, there will be meetings of Committees at the Royal College of Physicians as follows: Parliamentary Committee, 2.0 p.m.; Educational Committee, 3.0 p.m.

Inspection of Dublin Asylums.—During the forenoon and afternoon on Wednesday members who care to do so will be given an opportunity of being shown over the Richmond Asylum, St. Patrick's Hospital, and the Stewart Institution. The newer portions of the Institution have been specially constructed economically to accommodate patients of the chronic and harmless class.

The Council will meet on Thursday, July 13th, at 9.30 a.m.

The Annual Meeting will commence at 11 a.m. on Thursday, July 13th, at the Royal College of Physicians, when the usual business of the Association will be transacted.

2 p.m.—The President's address, after which the following papers will then be read: Dr. G. M. ROBERTSON (Morningside), "Treatment of General Paralysis, with a view to Cure." Dr. W. GRAHAM (Belfast), "Psycho-therapy in Mental Disorders." Dr. M. J. COLLINS (Ewell Colony) will read a paper upon "Causes of Sudden Death in Epilepsy and Some Points in the Treatment of Epilepsy." Dr. R. R. LEEPER (St. Patrick's Hospital), "Note on Hereditary Insanity from a Practical Standpoint."

Friday, July 14th, at 9.30 a.m., at the Royal College of Physicians: Dr. T. DRAPES (Enniscorthy) will read a paper entitled, "The Personal Equation in Alienism." Prof. A. C. O'SULLIVAN, F.T.C.D. (Dublin University) will read a paper, illustrated with lantern-slides, upon a "Case of Degeneration of the Spinal Cord following Infection with *B. pyocyaneus*." Prof. J. SHAW BOLTON (Wakefield) will give a short lantern demonstration to illustrate "Certain Observations on the Morbid Histology of General Paralysis." Dr. COLIN McDOWALL (Cheddleton) and Dr. W. T. SEWELL (Newcastle), "Clinical Evidence, *re* the Toxic Nature of Insanity."

1.45 p.m.—Afternoon Session.—The following papers will be read: Prof. W. H. THOMPSON (Dublin University), "The Chemical Regulation of Neuronic Function." Dr. EDWARD MAPOTHER (Long-Grove), "Mental Symptoms in Association with Choreiform Disorders." Dr. J. J. FITZGERALD (Cork), "Trephining in Mental Diseases." Dr. IVY MACKENZIE (Glasgow), "Salvarsan in Nervous Disease, with an Account of its Effect in Syphilitic and Parasyphilitic Conditions."

4.30 to 7 p.m., Garden Party.—The Reception Committee will be "At Home" to members and ladies accompanying them at the Zoological Gardens, Phoenix Park, by the kind permission of the Royal Zoological Society of Ireland.

9 p.m., Theatre.—A certain number of special seats are, by the kindness of Dr. Dawson, at the disposal of members and ladies accompanying them, for a variety performance at the Theatre Royal. Tickets may be obtained on application to the Treasurer or General Secretary during the meeting. But intimation should be given on the enclosed form, so that the number requisite may be booked.

Saturday, July 15th.—Excursion to the Vale of Ovoca, Meeting of the Waters, Seven Churches and Glendalough. (Tickets 15s., inclusive of first-class train, car-hire, luncheon, tea, and dinner.)

10.15 a.m.—Train leaves Harcourt Street Station.

12.18 p.m.—Arrive Ovoca Station. Drive through the Vale of Ovoca, passing the Meeting of the Waters, to Rathdrum. Luncheon at the Grand Central Hotel, Rathdrum. Drive along the Vale of Clara to Glendalough. Tea at the Royal Hotel. Visit the lakes and the Seven Churches.

6.30 p.m.—Dinner at the Royal Hotel.

7.30 p.m.—Leave to catch the 8.48 p.m. train from Rathdrum, arriving in Dublin 10.30 p.m.

Members desiring to stop for the week-end at Glendalough can do so for 15s. additional payment. This includes breakfast on Monday morning.

Members desiring to avail themselves of these exceptional terms should state their intentions at least a fortnight before the meeting to Dr. R. R. Leeper, St. Patrick's Hospital, James Street, Dublin.

Visit to Armagh Palace.—His Grace, the Primate of All Ireland, has most kindly stated that he will be pleased to see any members to lunch or tea who care to visit Armagh Palace on Saturday, July 15th, or Monday, July 17th, and to arrange for them to be shown the Palace and other sights of Armagh (Armagh is about three hours' train journey from Dublin).

The Annual Dinner will take place on Thursday, July 13th, at the Royal College of Surgeons, St. Stephen's Green, at 7.0 for 7.30 p.m.

Music will be kindly supplied by the "Strollers' Club."

It will very considerably facilitate the making of necessary arrangements, especially in regard to seating, if members will kindly signify at an early date to the General Secretary their intention of dining. If any member desires to bring a guest or to sit near certain other members this will be arranged on his signifying his wish either on the enclosed form or by a later communication.

It may be clearly understood that no liability is incurred by announcing an intention to dine if later on a member finds that he cannot attend; and, further, if a member finds that he can dine, his not having given notice of his intention does not preclude his doing so. *But in either case a letter or telegram addressed to the Treasurer at the Shelbourne Hotel, Dublin, will be serviceable and kind.*

The charge for Dinner Tickets (wines included) will be one guinea, and payment should be made either by cheque or in cash to the Treasurer, who will supply a voucher.

Honorary Membership of Clubs.—The Committees of the University and St. Stephen's Green Clubs have kindly consented to admit visiting members of the Association as temporary members during the meeting. To secure these advantages it will, however, be necessary to send in names. (Members desiring to avail themselves of this privilege should intimate their intention of doing so on the enclosed form.)

Arrangements for Ladies.—The Ladies' Reception Committee have made the following arrangements for the entertainment of ladies accompanying members:

Thursday, July 13th.—Mrs. Dawson kindly invites the ladies of the party to luncheon at 1.30 p.m., at 40, Fitzwilliam Place, Dublin.

Motor drive up the Liffey Valley to Leixlip Salmon Leap, stopping for tea at St. Edmundsbury, near Lucan, about nine miles out of Dublin.

Mrs. Leeper kindly invites to tea at St. Edmundsbury, Lucan, at 5 p.m.

Friday, July 14th.—The members of the Ladies' Committee are at the disposal of any who wish to view the sights of Dublin at 11 a.m. (Arrangements can be made on previous day.)

Mrs. Donelan kindly invites the ladies of the party to luncheon at S. Dymphna's, North Circular Road, Dublin, at 2 p.m.

"At Home" at Zoological Gardens.

Theatre (*see* p. 563).

Saturday, July 15th.—Excursions to Ovoca, etc.

South-Eastern Division.—The Autumn Meeting will be held by the courtesy of Dr. H. Kerr at the Bucks County Asylum, Stone, on Wednesday, October 4th, 1911.

South-Western Division.—The Autumn Meeting will be held by the courtesy of Dr. Blachford at the Bristol Asylum, Fishponds, on Friday, October 27th, 1911.

Northern and Midland Division.—The Autumn Meeting will be held by the courtesy of Dr. Sankey at Boreatton Park, Salop, on Thursday, October 19th, 1911.

Scottish Division.—The Autumn Meeting will be held on Friday, November 17th, 1911.

Irish Division.—The Autumn Meeting will be held on Thursday, November 2nd, 1911.

APPOINTMENTS.

Brown, Ralph, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Assistant Physician to Bethlem Royal Hospital.

Chambers, Walter D., M.A., M.B., Ch.B.Edin., Assistant Physician, Crichton Royal Institution, Dumfries.

Cole, Robert Henry, M.D.Lond., M.R.C.P., Lecturer on Mental Diseases and Mental Physiology to St. Mary's Hospital Medical School.

Martin, Mary Edith, L.R.C.P.&S.Edin., L.F.P.S.Glasgow, L.S.A., M.P.C., Assistant Medical Officer, Lindville Private Asylum, Cork.

NOTICES BY THE REGISTRAR.

THE next examinations for the Nursing Certificate will be held on the following dates: Preliminary Examination on Monday, November 6th, 1911; Final Examination on Monday, November 13th, 1911.

List of successful candidates at the Preliminary Examination held in May, 1911:

- Chester County (Upton) Asylum.*—Sarah Griffiths.
Devon County Asylum.—George Edmund Essex, Lily Elizabeth Butt, Mabel Eliza Channon.
Essex County Asylum.—Ellen Tann.
Glamorgan County Asylum.—John Morris, Evan James Jenkins, Evan Hughes, Frank Jesse Timms.
Herts County Asylum.—Agnes Annie Griffiths, Dora Dillon, Henry Albert Box.
Isle of Wight Asylum.—Beatrice Maud Clark.
Kent County (Barming Heath) Asylum.—Sara Agnes Wratten.
L.C.C. (Bexley) Asylum.—John Alfred George, Kate Stemp, Sydney Charles Austin.
L.C.C. (Cane Hill) Asylum.—Harry Samuel.
L.C.C. (Colney Hatch) Asylum.—Rosie Florence White, Florence Rose.
L.C.C. (Hanwell) Asylum.—Elsie D. Bates.
L.C.C. Long Grove Asylum.—Mabel Marion Nown, Charles E. Gatter, Henry Robert Wilshire, William John Bowler, Edith Elizabeth Thurlow, Edith Silk.
Middlesex (Napsbury) Asylum.—Winifred Civil, Bessie Rowlands, Annie Parkinson, Alfred C. Tree.
Shropshire County Asylum.—Philip H. Slater.
Staffordshire (Cheddleton) Asylum.—Ethel Barnes, Alice Dodd.
Suffolk County Asylum.—Henry Sparks, Cecil B. Potter, Ernest Albert Carter.
Sussex County (Hellingly) Asylum.—Renie Kathleen Richardson, Charles Jacob Carpenter, Thomas Turner.
Yorks (Wadsley) Asylum.—Mary Parker, Celia Green.
Yorks (Scalebor Park) Asylum.—Ethel Eaves, Amy Wilson, Alice Shipley.
Birmingham (Winson Green) Asylum.—John Ernest Kent.
Brighton Borough Asylum.—Sarah Jane Bent.
Derby Borough Asylum.—Louisa Elizabeth Davies, Florence Rebekah Smith, Edith Hettie Barlow.
Sunderland Borough Asylum.—John Galbraith, Thomas William Hopkirk, Wilfred H. Moore, Eleanor Peat Braid, Lucy Moss Lovatt, Mary Thom.
Bethlem Royal Hospital.—William Walter Hewitt, Louisa Evelyn May, May Annie Wooton, Catherine Ellen Fox, Harriet Lilian Dorrington.
Camberwell House Asylum.—Ethel M. Franklin, Ann H. R. MacKinnon.
York Retreat.—Lilian A. Phillips, Jessie A. Beckwith, Grace A. Charter, James McG. Duff.
Holloway Sanatorium.—Arthur Jonas.
Ayr District Asylum.—Elizabeth Murray, Elizabeth Ferguson, David Reid, Robert Rickard Webster, William Brown.
Dundee District Asylum.—Williamina Campbell, Robert Thain, James Middleton, Edith E. Allan.
Craig House (Morningside) Asylum.—Elizabeth K. Lindsay, Frances M. G. Parry, Gordon Adam, David Mailer.
Edinburgh Royal Asylum.—Helen Gerard Richardson, Christina S. Simpson, Agnes McG. Brown, Janet Low Cameron.
Edinburgh District (Bangour) Asylum.—Margretta Bell, Marion P. Jeffrey, James L. Wakelin, Jean Chisholm.
Elgin District Asylum.—Florence A. Browse, Bella McKay.
Glasgow (Gartloch) Asylum.—Margaret W. Irvine, Katherine McLeod, Veronica M. Gillespie, Sarah Simpson.
Glasgow (Woodilee) Asylum.—Mary Macdonald, Jean Lauder, Helen K. Wotherspoon, May Hogg Vallance, Agnes Cross.
Lanark District Asylum.—Jane B. Allan.

Montrose Royal Asylum.—Fanny D. Smith.

Renfrew District Asylum.—Johnston Patrick, Christina M. MacDonald, Saralee Paterson.

Roxburgh District (Melrose) Asylum.—Annie L. Drysdale, Alexander W. Ewen, David Fenton.

Stirling District (Larbert) Asylum.—Mary A. Sutherland, Catherine M. Scott, Wilhelmina J. Sutherland, Ella C. Gartley, Ian Ross, W. Mulholland, R. Dickson.

Crichton Royal (Dumfries) Asylum.—Jeanie Marshall, Christina Graydon.

List of successful candidates at the Final Examination held in May, 1911.

Chester County Asylum.—Sarah Norman, Mary Allman, John Griffiths, David Serdville, Llewellyn Griffiths, Margaret Ellison.

Cumberland and Westmoreland Asylum.—Mary Pallister-Craven, Ada Smith.

Devon County Asylum.—George Henry Hobson.

Durham County Asylum.—Alice Maud Hunter, Emily G. Austen, Harry Sunley, Thomas Wheatley, Ethel Benson, Edith May Skipper.

Essex and Colchester Asylum.—Alice Rose Kugel.

Glamorgan County Asylum.—William Albert James, Grace Hillmann, Thomas William Thomas, Esther Owen, Fanny W. Smitheram, Mary Jane Francis, Nelly Owen, Arthur George Woodgate, Sidney Sharland, Sydney Chandler, Albert Nathaniel Sutton, Annie Davies, John Evans, John Millward, Richard John Williams.

Three Counties (Hitchin) Asylum.—Daisy Lydia Piggott.

Herts County (St. Albans) Asylum.—Walter Robert Jones.

Isle of Wight Asylum.—Lewis Benjamin Sykes, William W. B. Tanner.

Kent County (Barming Heath) Asylum.—Milton Frank Hills, Minnie Wyld.

Kent County (Chartham) Asylum.—William F. Wildash, Ernest Medd, Susannah Ann Bailly.

Lancaster County (Lancaster) Asylum.—John Strickland, Nellie G. Churchman, Clara Hanson, Annie Tipping, James Harry Bailey.

Lancashire (Whittingham) Asylum.—Agnes Archer, Mary Campion, Elizabeth Cassidy, Mary Satcherenus Stock, James Parkinson, James Boyle, Robert Cunningham.

L.C.C. (Bexley) Asylum.—Arthur William Frost, Hetty Dennis, Mary P. Jarrett, Jessie V. Cameron, George Carr, Charles Rutter, William Albert Simpson Peter Cliff, William Bell, Walter Peckham, Ernest Eastwood, Alfred F. Piper, Ann Veronica Brace.

L.C.C. (Cane Hill) Asylum.—Ethel Maud Swain, Florence E. Brumbley, Sidney Bossom, Daniel Michael Foley, John Ernest Jenkins.

L.C.C. (Claybury) Asylum.—Evelina Rosalie Hardy, Cissie Parsons, Agnes Cocksedge, Mary Jones, Ethel Elizabeth Todd, Eleanor M. Towle, Hannah Hornsley, Mabel Kyte, Annetta Hughes.

L.C.C. (Colney Hatch) Asylum.—Frederick R. Mawford, George Baker, Patrick Donovan, Henry Sides, Lilian Evelyn Smith, Ivy Violet Hall, Evelyn Mary A. Humphreys.

L.C.C. (Ewell Colony).—Charles John Burdett, William Ingham, Scott, Henry John Cooke.

L.C.C. (Hanwell) Asylum.—Harry Carter, Emily Louisa Hall, Annie Elizabeth Neale, Caroline Mary Jennings, Christopher Phillips, Edwin Havelock Kingham.

L.C.C. (Horton) Asylum.—Annie Caffyn, Benvenuta Flory Evans, Helen Jones, Alfred James Hunt, George Cox.

L.C.C. (Long Grove) Asylum.—Bertha Rayfield, Arthur Heath, Alfred F. Dodge, Fred Askew, Spencer Percival Thomson, Leopold Cyril Colbourne, George Reginald Mayers, Arther James Moore.

L.C.C. (Banstead) Asylum.—Mary Louisa Dobner, Lilly Sedgewick, Elizabeth Barry, Amelia A. Gilbeck, Nellie C. Morris, Rosa E. Curran, Annie Matthews, Hilda Mary Buckingham.

Middlesex (Tooting Bec) Asylum.—Jeanie Smith, Martha M. Taylor, Louisa Hatfield.

Middlesex (Napsbury) Asylum.—Stephen H. Gordon, James Huddleston, George A. Watkins, Arthur Freeman Piggott, Bessie Eliza Prior, Florence K. Hextall, Emily Anderson.

- Notts County Asylum.*—James Dyson, Elizabeth Burton, Gladys A. Richer.
Oxford County Asylum.—Frederick Green, Thomas Egbert Coster.
Shropshire County Asylum.—Minnie Cartwright, Hannah Elizabeth Owens, Elizabeth Taylor, Sarah Annie Millichamp, Herbert Hall.
Suffolk County Asylum.—Hilda Newell, Violet F. Golder, Frank Willmot Smith, Wallace Henry Woods, James William Peacock, Ida May Utting, Emily J. Rattle.
Surrey County (Netherne) Asylum.—Albert Alexandria Howson.
Sussex (Hellingly) Asylum.—Susannah Rhodes, Florrie Tolfree, Ethel Gladys Kingston, Ethel Maria Fensome, Ethel Jane Pollock, Gertrude Wilson, Florence Ada Huzzey, Dorothy Ida Duke, Emmie Kenning, Louisa Jane Bird, Kate Hannah Purdy, Edward Brook Williams, Frederick Robert Daws, Walter W. F. Jennings, George Howard Wickens, Charles Joseph Doherty.
Sussex (Chichester) Asylum.—Grace Emily Driver, Muriel Frances Bean, Frances Catherine Sims, Albert Edward Holston, Herbert Edward Payne, Florence Blanche Shapland, Henry Charles Geall, William Herbert Davis, Charles Henry Buss.
Worcestershire (Barnsley Hall) Asylum.—Thomas Read Baker, Albert Cox, Walter Charles Richardson, Alice Ursula Shenton, Annie Roe, Rosa Mabel Cole, Hannah Mary Dallison, Jane Staines.
Yorkshire (Beverley) Asylum.—Annie Abbott.
Yorkshire (Clifton) Asylum.—Ada Winifred Dyer, Lilly Lynch.
Yorkshire (Storthes Hall) Asylum.—Ida Mary Crossley, Mary E. Armitage, Annie Amelia Cahill, Hilda Ellen Warrener.
Yorkshire (Wadsley) Asylum.—Henry Francis.
Staffordshire (Cheddleton) Asylum.—Arthur Fox, Amy Gladys Hobbs, Lillian Elizabeth Payne, Ellen K. Pebworth, Ethel May Becket, Katie Elizabeth Gilleran.
Bristol City Asylum.—Arthur Green, William Jackson, Evelyn Taylor, Barbara Stewart, Nora Qingley, Florry Barker, Isabel Gill, Hilda Guard, George James Snelgrove.
Birmingham (Winson Green) Asylum.—Sydney Douglas Dear, Lily Martin.
Birmingham (Rubery Hill) Asylum.—Hannah Stubbs, Nellie Jones.
Canterbury Borough Asylum.—Walter Frank Jenkins, Bessie Vant, Emma Brown.
Cardiff City Asylum.—Charles Rendell, Mary Sophia Short, Matilda Morgan.
Derby Borough Asylum.—Ethel Mary Hodgkinson.
Hull City Asylum.—Harold Wilson, Harold Roberts, Mark Stellings, Jesse Hill.
Leavesden Asylum.—Nellie Elliot Stedman, Rosina Moore, James Crossley, Charles Ernest Jackson, Charles Read.
City of London Asylum.—Arthur Dean, Mabel Watts, Margaret Maud Ryall.
Newcastle Borough Asylum.—Edith Ayton, Nora Courtney, Isabella Taylor, Margaret Robinson Welsh.
Newport Borough Asylum.—William Richard Allen.
Norwich City Asylum.—John Russell, George William Catchpole.
Notts City Asylum.—Ethel Maude Hill, Florence Sarah Jenkinson, John Darlington Gee.
Sunderland Borough Asylum.—Richard Mahon, Robert Percy Miller, Violet Cook, Elizabeth Gray, Emma Jane Hartlings, Elizabeth Ann Richardson, Lilian Rogers.
West Ham Borough Asylum.—Ethel Newman, William Currey Pinkney, Gertrude F. Aslett, George Sturney, Douglas D. Blyth, Hilda Annette Masters.
York City Asylum.—James Sanders, Ernest Linfoot, Charles Edward Trayer, Lavinia Gant, Ada Wallis, Ruth Hartley.
Bethlem Royal Hospital.—John Trayton Wilson.
Brislington House.—Ada Goodall George.
Camberwell House.—Cicely Collins, May Attwood.
Fenstanton Asylum.—Maud Ellis, Ada F. Aird.
Redlands Asylum.—Frederick William Winsor.
Holloway Sanatorium.—Herbert James Carpenter, Ida Clara McCalman, Alice Evelyn Harty, Margaretta Muriel Williams, Alice Lord, Ethel Wynne Pooler.
York Retreat.—Ernest Bowman, Helen Margaret Price, Alexandrina Dey, Annie Barbour Smith, Margaret Grisbrook, Lucy Evelyne Lister, Lily Musgrove, Ethel Brett.

Aberdeen Royal Asylum.—Agnes S. Morrison, Janet Frazer Grant, Janet Angus Campbell.

Aberdeen District Asylum.—Mary Bella Watson, Ethel Margaret Walker, Georgina Duguid, Helen Summers.

Argyll and Bute District Asylum.—Mary Gunn, Emily Ellis, Mary Anne Macdonald, Duncan McTavish, Roderick McDonald.

Aye District Asylum.—Mary Morton, Margaret Hunter, Angus Macdonald.

Dundee District Asylum.—Sarah Ogilvie, Caroline Louise A. Ritchie, George Weir Thain, Williamina Munro Gibbon, William Biosot Smeaton.

Edinburgh Royal Asylum.—Agnes Fletcher, Katherine Gray McKenzie, Jean Thomson, Ernest Stuart, Helen Craigen Dawson, Thomas McKenzie, Jane Lena McLeod.

Craig House.—Ella Robb, Mary McWilliams, Amelia Jane McClelland, Ena MacDonald, Duncan McMurray.

Edinburgh District Asylum.—Mary Mackintosh, Grace Skinner Braid, Christian Mutch Will.

Elgin District Asylum.—James Shiach.

Fife and Kinross District Asylum.—Margaret K. Brown.

Glasgow Royal Asylum.—William Thomas Gray, Thomas Gillespie Thomson, Christina Macdonald, William John O'Hare, Alexander Duncan, Annabella Henderson, Thomas Heslop Macaulay.

Glasgow (Garlock) Asylum.—Anna Smith Dobbie, Mary Hutcheson, Charlotte Calder Sinclair, Arthur Dick, Leonard Winkworth.

Glasgow (Woodilee) Asylum.—Jeanie Gloss Russell, Ada Edmonds, Elizabeth J. Bryans, Christina McP. McLardy Bella Kerr, Maysie McW. Train, Jane Miller Boyes, Sarah Hendry Philip, Agnes Johnston Methven, Margaret McGarrity, Michael Hargrove, Daniel Duff, Elizabeth Taylor Burns, David Clark, Janet R. Kerr, Jeanie Highet.

Eastern District Hospital (Glasgow).—Florence Ada Merchant, Janet Stewart, Annie Parker Thomson.

Paisley District (Riccarton) Asylum.—Mary Moir Glashan.

Haddington District Asylum.—Annie Shaw, M. Garraway.

Paisley District (Hawkhead) Asylum.—Mary Davidson, Isabella Haggard, Jean R. Sneddon.

Inverness District Asylum.—Barbara A. Bruce, John McDonald, S. Mackenzie.

Lanark District Asylum.—Annie Boyd, Sarah Begley, Jessie MacDonald, Helen Dunsmore, Barbara Waddell Dawson, Mary Buchanan, Nellie Aitken, Jean B. Tait, James Burrell.

Midlothian and Peebles District Asylum.—Jessie Wallace Lawrie, Rita Johnston, Annabel Ferguson, Margaret Gowans.

Montrose Royal Asylum.—Jessie B. Ramsay, Isabella Howitt, Isobel Walker.

Perth District Asylum.—Theresa Cromar Bruce, Annie McLeod, Alice Steel.

Renfrew District Asylum.—Donald Maciver.

Roxburgh District Asylum.—Annie Bella Newlands, Georga Sim.

Stirling District Asylum.—David Spink, Jane Aitken, G. Brock, Martha Graham, Winifred Gibbs, Georgina Rutherford, Isobel Moffit.

Crichton Royal (Dumfries) Asylum.—James Robertson Rayer, Annie Hendry, John Carruthers, Margaret Scott Burt, James Handley, John Kirk, William R. Dickson, Helen Agnes Grieg, Jessie Campbell, Agnes Coly, Margaret Fair, Christina Young.

James Murray's Asylum (Perth).—Christina Dow.

New Loughton Hall Asylum (Edinburgh).—Isabella McFarlane.

Armagh District Asylum.—Robert John Johnston, Thomas Coll.

Ballinasloe District Asylum.—Michael Lyons, Rose McHugh, Bridget Naughten, Kate Mannion, Catherine Finnerty.

Clonmel District Asylum.—Luke Doheny, Mary Carroll, Ellen Fitzpatrick.

Enniscorthy District Asylum.—Michael Doyle, Patrick Doyle, Elizabeth Stone.

Limerick District Asylum.—Jeremiah Mulqueen, Mary Doody, Margaret Higgins, Maria Kinnane.

Londonderry District Asylum.—William F. Gallagher.

Monaghan District Asylum.—Patrick Cox, Katie Goss, John Conolly, William Morrow, Michael Deery, Robert Cochrane.

- Mullingar District Asylum.*—Edward Colgan, John McCormack.
Portrane District Asylum.—Patrick McHugh, Patrick Gillie, Clement D. Brown, Matthew Fagan, Catherine McMenamin, Mary Nevin.
Richmond District Asylum.—Mary Deegan, Bridget Laffan, Mary Rogers, Lizzie Rooney, Elizabeth Dillon, James Gilbride, Thomas Martin, Joseph Fagan, Patrick McCabe, Lawrence Long, Peter Nolan, Michael Synnott.
Stewart Institution.—Mary Kate Ormonde.
Farnham House.—Thomas McDermott, Eleanor Chandler, Walter Percy Thompson.
Lancashire (Rainhill) Asylum.—Isobel Reid Sutherland, Jessie Gilbert, Blanche Enticott, Jesse Bate, Isabel Margaret Tweedy, Mary Ann Alderson, Rachel McHenry, Elizabeth Brierley.
Warwick County Asylum.—Walter Herbert Judge, Kathleen Mehegan, Annie E. Thomas, Maggie Walpole, Margaret Callison, Edith B. M. Boswell.
Grahamstown (South Africa) Asylum.—Margaret M. A. Stephens.
Pretoria Asylum.—Sarah Pawson.
 The following is a copy of the questions which appeared on the papers :

Preliminary Examination, May, 1911

1. What amount of sleep should you consider insufficient—(a) for a child of three; (b) for an adult?
2. Explain the different ways in which bleeding from the leg can be arrested.
3. A patient at dinner is found to be choking. What would you do?
4. What is (a) a fracture of a bone; (b) a dislocation of a joint; (c) a sprain?
5. Describe the mechanism of respiration, and mention the chief blood changes that take place during respiration.
6. Describe the abdomen and mention its chief contents.
7. What do you mean by the following terms: Absorption, assimilation, secretion, excretion, retention, suppression?
8. What points should a nurse note as regards the action of a patient's bowels?

Examination for Nursing Certificate, May, 1911.

1. What is meant by loss of sensation? How would you test it, and to what is it due?
2. At what temperature ought a sick-room to be kept, and how would you regulate it?
3. What precautions should be taken in the use of the catheter?
4. What is imbecility? Describe fully the symptoms of any case that you have seen.
5. What are the chief symptoms of heart disease, and what precautions would you take in the management of an insane patient suffering from heart disease?
6. What are the uses of a nervous system?
7. What do you mean by pyrexia? What are its stages; and what its varieties according to the course it may take?
8. What is the signification of the terms "hallucination," "illusion," and "delusion"? How would you classify delusions, and which are the most dangerous kind?

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VOL. LVII.

Part I.—Original Articles.

*The Presidential Address on the Relation between the
Geographical Distribution of Insanity and that of
Certain Social and other Conditions in Ireland,*
delivered at the Seventieth Annual Meeting of the
Medico-Psychological Association, held in Dublin, on
July 13th and 14th, 1911. By W. R. DAWSON, M.D.,
F.R.C.P.I., Inspector of Lunatic Asylums in Ireland.

GENTLEMEN,—My first duty, which is also a pleasure,
is that of thanking you, as I do most warmly, for the honour
you have conferred upon me in electing me to preside for
a season over this great Association, a position which may
well be called the blue ribbon of our department of medicine,
rendered illustrious as it is by the names of great men who
have held the office in the past. My only regret has been that
in accepting it I replace one whom we should all gladly have
seen in this chair, one whose enforced retirement cannot be
alluded to without a feeling of loss, though we rejoice that his
health is so far restored as to enable him to be amongst us
to-day. For the rest, I am happy to echo the sentiment
expressed by Dr. Macpherson a year ago, and to welcome my
election as a token that the interests, aims and aspirations of
the departments which preside over the lunacy administration
of these countries are recognised as identical with those of all

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the other members of this Association—that, in fact, we all form one great body, united by devotion to as lofty an object as can animate the members of any merely human society.

And now permit me, in my own name and that of the Irish members, to bid you a hearty welcome to our country and our city. We have done what we could in the short time at our disposal to render your stay here not only a profitable but a pleasant one—

“Our true intent is all for your delight,”

—and we hope that the present meeting will not be the least agreeable to look back upon of the annual re-unions of our Association. Of these, five previously have been held in Ireland, three in Dublin, and two in Cork ; and the last, only ten years ago, is within the memory of most of you, while the older members will well recollect the great meeting in Dublin in 1894. Retrospects like this can rarely fail to strike a note of sadness, however, and it is so here. Since the meeting of 1901, our kindly President of that year, Oscar Woods, a man universally beloved, has passed away into the Unseen, and still more recently Conolly Norman, who presided over the last meeting held in Dublin, was cut off with disastrous suddenness, leaving to all who knew him a regret that so valuable a life should have ended untimely, and to his personal friends a blank which will never quite be filled.

Within even the past year the hand of death has been at work amongst the members of our Association, removing, amongst others, two who, strangely enough, occupied this chair in consecutive sessions : Robert Baker, who worthily carried on for many years the great traditions of the York Retreat, with which, indeed, he was still connected as consulting physician at the time of his death on August 18th, 1910 ; and Edmund Bancks Whitcombe of Birmingham, a man to whom the Association and the cause of the insane owe a debt of gratitude on many counts, but perhaps most for his work and influence on behalf of the adequate training of asylum nurses. He held office as President in 1891, immediately before Dr. Baker, and died in harness only last May. Another man of mark who has gone is James Rorie, of Dundee, sometime Divisional Secretary for Scotland, who passed away April 3rd, 1911 ; one whose strong character and power of work enabled him to accomplish much for the insane under his care. Lastly,

almost yesterday, we in Ireland have had to lament the unexpected loss of Sir George Plunkett O'Farrell, for twenty years Inspector of Lunatic Asylums, the value of whose work, patient, tactful, and unostentatious, can only be fully recognised by those who wrought with him throughout his period of office, and recollect the changes effected during that time. Even in his retirement his interest in all that concerned the mentally afflicted was undimmed; and the loss of that kindly interest, and of his readily exerted influence, will be felt by the lunacy administration of this country for many a day.

One cannot allude to Sir George O'Farrell without mentioning the friend and colleague who laboured with him throughout his official years, and to whose knowledge and hard work the good results which have marked their course are so largely due; and I feel sure that every member of this Association, with which Dr. Courtenay was long connected as Divisional Secretary for Ireland, will join in wishing him many years of happiness in which to enjoy his well-earned leisure.

And, as we speak of retirement, there will be noticed with universal regret the absence from the cover of our Journal of two names which had seemed as much a permanent part of its design as the device of the Association itself. The long-threatened has come at last, and Dr. Rayner and Dr. Urquhart have resigned their position as co-editors of the *Journal of Mental Science*. I feel sure that the able members who take up the task which they have relinquished will in no way misunderstand me when I say that the loss to the Association is great, and that the facile pens and judicious and kindly style of our retiring Editors will be greatly missed. Long may they live to assist with their valuable experience the newer generation.

But though life is short, science, like art, is long, and while it behoves us to bid God-speed to those who are obliged to withdraw from the burden and heat of the day, and to remember the friends who—

"Have drunk their Cup a Round or two before
And one by one crept silently to rest,"

it is for us, having done so, to turn to our work again, take up the task which they have laid down, and drawing inspiration from their example, press forward undaunted to ends which

maybe are as much beyond our vision as they were beyond theirs.

It is a platitude that bears repeating that to understand the present we must know the past, and that both past and present must teach us if we are to deal with the future and be victorious. Translated into terms of our own particular work, this means that we must study all the circumstances and conditions of life, past and present, in their relation to insanity in order to determine how far they each may have a bearing upon it. To such a study every country has its own contribution to make, because in no two are the conditions of life wholly alike ; and I have therefore decided to-day to place before you certain data of more or less interest concerning the relative local prevalence in Ireland of certain social conditions, such as density of population ; poverty (as shown by the incidence of pauperism and by the rateable value of property, together with the numbers of emigrants from each district) ; disease incidence, as shown by the general death-rate and that from tuberculosis ; and last but not least, the prevalence of criminality and of alcoholism ; the whole being considered in relation to the distribution of insanity, so far as this is indicated by the numbers from each county in the asylums and workhouses at the beginning of the present year. Unfortunately the figures showing the numbers outside institutions, which will appear in the forthcoming census returns, are not yet available, but this is the less regrettable that such numbers possess, in my opinion, very doubtful value.

To a certain extent a similar comparison has already been made for England and Wales. As long ago as 1893 Dr. Bevan Lewis, in a paper in the *Fortnightly Review* on "The Origins of Crime" (1), published a table showing for each county in England and Wales the ratio to every 1,000 of the population of (i) convictions for drunkenness, (ii) the numbers of the pauper lunatics, and (iii) the numbers of all classes of paupers ; and arrived at the conclusion that agricultural counties, whether inland or seaboard, although sober and free from crimes of violence, tend to produce paupers and insane, whereas the mining and manufacturing counties are relatively free from pauperism and insanity, but show a large prevalence of drunkenness and the type of crime to which it leads, a state of affairs which is specially marked where such counties lie on the sea-

board. Again, in the *Fifty-ninth Report of the English Lunacy Commissioners* (2) most instructive maps were issued showing the comparative density of the population in the English and Welsh counties, and also the comparative distribution of the pauper insane, and the prevalence of drunkenness, and of insanity ascribed to intemperance, the result being that the prevalence of insanity seemed to bear no relation to the density of the population, or if any, an inverse one, though even this was not quite constant; while the distribution of insanity with reference to alcoholism is shown to be as stated by Dr. Bevan Lewis. Thus certain counties with a low rate of insanity show a high proportion of admissions attributed to intemperance and *vice versa*, the counties where the proportion of alcoholic cases is large being also "mainly those in which, from the criminal statistics, crimes associated with drunkenness prevail."

In a later paper (3) Dr. Bevan Lewis supports his previous conclusions, and lays special stress upon what he calls the dissociation of alcoholism (by which he apparently means inebriety) from insanity, while its incidence coincides with that of epilepsy and convulsive psychoses. The true connection between alcoholism and insanity has, however, been pointed out by Sullivan (4), who draws a distinction between convivial drinking, the index of which is drunkenness as shown by the criminal statistics, and industrial drinking, *i.e.*, drinking for the sake of the help gained from alcohol in coarse muscular effort, which is largely the cause of chronic alcoholism. Taking as the index of the latter the number of deaths attributed to alcoholism and cirrhosis of the liver, aided by the number of suicidal attempts recorded, and comparing the figures county by county, he finds that whereas the mining counties, such as Durham, are the most addicted to drunkenness, these counties stand low in the scale of alcoholism; that the agricultural counties are low in both; whereas the manufacturing counties are both drunken and alcoholic. The dependence of alcoholism, as distinguished from drunkenness, upon industrial conditions is further borne out by the death-rate from this cause in the various trades, being lowest amongst agriculturists, and highest, if we except the liquor trade itself, amongst dock labourers; and the Scottish statistics show the same. It is thus apparent, recollecting the regional distribution of insanity in England and Wales, that there is no constant relation between the

prevalence of either drunkenness or alcoholism and certified mental disease.

Bearing in mind the broad results of these investigations, let us see how they compare with the state of things in Ireland. And first let it be noted that taking Ireland county by county there is far less difference between one county and another than is the case in England and Wales. The mining industries are negligible from our point of view, and no whole county is given over to manufactures in the sense in which are, say, Lancashire and Stafford. This is in fact an agricultural country, nearly 59 *per cent.* of its inhabitants being engaged in this way, as against 12 *per cent.* in England; and it might be expected that the country as a whole would show results comparable with those of the agricultural counties in England and Wales, or at least would show, as compared with the English and Welsh figures, a higher degree of insanity and pauperism, less drunkenness and crime, and less chronic alcoholism. To a certain extent this is found to be the case. The insane formed 5.52 per 1,000 of the population of Ireland at the end of 1909 (as against 3.61 for England and Wales), a proportion which is exceeded by few of the English agricultural counties. A comparison of the relative proportion of paupers is of little value, for reasons which will appear later, and therefore may be omitted. ⁽¹⁾

On the other hand, although Ireland shows only 11.50 per 100,000 deaths from alcoholism and cirrhosis in 1909, as compared with 11.64 of England and Wales, the number of arrests for drunkenness in the former is about three times that in the latter, while as regards indictable offences the average of the five years 1905-9 was 222.61 per 100,000 for Ireland as against 181.53 for England and Wales, notwithstanding Ireland's relative freedom from graver crime. Thus the relations between the two countries which might have been expected from the study of localities in England alone cannot be said to prevail fully. It will be seen later, however, that the divergence is not really so great as it appears.

Proceeding now to study the country by counties, and taking the distribution of insanity first, as being the condition in relation to which the remaining subjects are to be considered, I have adopted as a criterion for this purpose the numbers belonging to each county found in the public asylums and

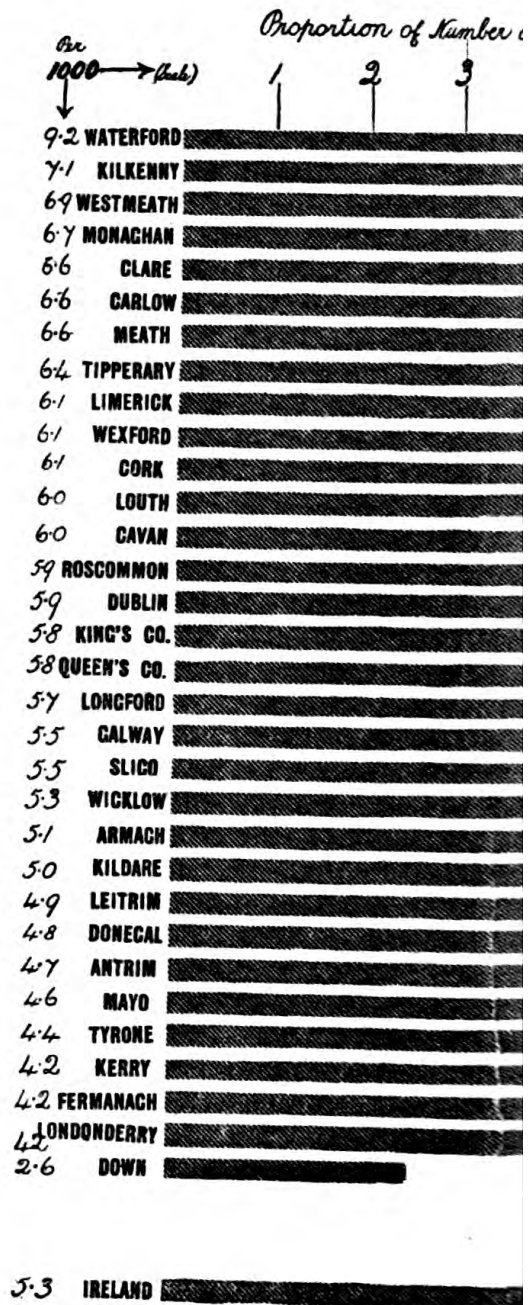
workhouses at the beginning of the present year, and have estimated their proportion to each 1,000 of the population as shown by the present census (5). In other words, the figures are based on the pauper insane in institutions only, and do not include those in private asylums, whose numbers for this purpose would have no value, or those at large, there being no account of the latter more recent than 1901. The numbers for the whole of Ireland were found to be 23,174, or 5·3 per 1,000 of the present population; and on going over the counties we find that no less than 21 show a higher proportion than this, Waterford leading off with the enormous figure of 9·2, or nearly 1 *per cent.*, followed at a considerable interval by Kilkenny, Westmeath, Monaghan, Clare, Carlow, Meath, and Tipperary, to take the first eight; while of those, eleven in number, below the average, the lowest of all is Down, and the next, in ascending order, Londonderry, Kerry, Fermanagh, Tyrone, Mayo, Antrim, and Donegal. Comparing this with what has been found in England and Wales, we perceive, as might have been expected, no such sharp differences as exist across the channel, but still on the whole the results are in accord. Thus the eight counties placed at the head of the list are every one agricultural or cattle-rearing, though it might have been anticipated that Waterford City would have modified the results for the county; and on the other hand, Antrim, which is well below the average with 4·7 per 1,000, contains the greater part of Belfast; Down, the lowest of all, contains the remainder; and Armagh, Tyrone and Londonderry, which include a number of smaller manufacturing towns, stand near the bottom of the list. Taking the manufacturing province of Ulster as a whole it is found that the proportion of insane is only 4·2, whereas agricultural Munster stands highest of all with 6·1 per 1,000. As against this, however, Dublin comes about the middle of the list, and Cork and Limerick are high, but the two latter have large agricultural areas to neutralise the effect of the cities. A fact which will surprise many is the small proportion of the insane in Kerry, which it has been the habit to cite as an instance of the pernicious effect of close inter-marriage in producing mental disease. To judge by these figures, however, either the inhabitants of that county have enlarged their sphere of operations when in search of consorts, or they may now retort that the very reverse is the

case. The low proportion of insane in Kerry, moreover, is an argument against assigning too much importance to ethnological considerations, as that Celtic county shows the same proportion of insane (4·2) as the average for the Saxon province of Ulster. As regards Dublin, it may be noted that the ratio of insane has apparently increased in the last ten years, since the census figures of 1901 place it lowest but one amongst the counties of Ireland.

Passing next to certain social considerations, let us see whether density of population bears any relation to the prevalence of insanity in Ireland. There it is found that the average for the whole country is '21 persons per acre, and that nine counties only are above that average, *viz.*, in order of density, Dublin, Antrim, Down, Armagh, Louth, Londonderry, Monaghan, Cork, and Limerick. Omitting Dublin, Antrim, Cork and Limerick, with their large cities, we find Down, Armagh and Londonderry low in the scale of insanity, but not so Louth and Monaghan. At the other end of the scale we have Meath with only '11 per acre, and then in ascending order King's County, Clare, Wicklow, Galway, Kerry, Westmeath and Queen's County, of which only Meath, Clare and Westmeath are high in the scale of insanity, while Kerry comes, as we have seen, very low. Waterford, with its high ratio of insane, comes twelfth on the list. From this it appears that there is no definite relationship between the proportion of insane and the density of the population, which corresponds with the conclusion of the English Commissioners as regards England and Wales.

The geographical distribution of pauperism is a question of importance, as we have seen that it bears some relation to that of insanity. In the Appendix Vol. xxx to the *Report of the Royal Commission on the Poor Laws and Relief of Distress*, published last year, the result of a special census taken on March 31st, 1906, is given (6), and as these numbers are the most complete and reliable readily to hand, I propose to adopt them, though they are not the most recent. They show that the rate for the whole of Ireland was 22·9 per 1,000, that eighteen counties were above and fourteen below this average, and that the variation was very wide between the highest, Limerick, which gives 40·9 per 1,000, and the lowest, Londonderry, with 8·2. It has been pointed out (7) that the

INSANITY



In the accompanying diagrams
Ireland the counties are placed
in comparison the same order is

proportions correspond roughly, though not absolutely, with the ratio of aged persons in the population ; but what strikes one at once is the fact that they bear no exact relation to the wealth or poverty of the district. Thus Donegal, a poor county, is lowest on the lists but one, while Galway, Mayo and Leitrim are well below the average. On the other hand, Dublin, by a long way the wealthiest county in Ireland, so far as its rateable valuation goes, stands fourth from the top of the list with 34·3 per 1,000 ; and it may be added that if the number in workhouses alone be taken, it is found to be the highest of all. Taking the country by provinces we find that Munster and Leinster show by far the highest pauperism rates, while poor Connaught and wealthy Ulster are a long way below them, and not very different in rate one from the other—indeed, the proportions of all cases receiving poor relief during the last available year were found to be the same in the two provinces. A comparison of the pauperism-rate with the average rateable valuation of the land per county shows very clearly the want of any correspondence between the general poverty of counties and their pauperism rate, and it may be added that this is borne out by a reference to a table in the Report on the Census of 1901 (8) giving the proportion of poorer-class inhabited houses in each county, the order of the counties in the latter respect corresponding fairly with that in the valuation scale. The only explanation which I have been able to find (7) suggested for this curious state of affairs is the fact that in the poor and out-of-the-way districts “the people are very helpful to one another—the poor mainly support the destitute.”⁽²⁾ Whatever be the reason, it is evident that the conditions in the poor counties of Connaught and the Atlantic seaboard are somewhat exceptional, owing to their isolation and the difficulty of communication, as well as the very low standard of living generally prevailing amongst the people, while on the other hand, Dublin is also exceptional, owing to the tendency of vagrants from all parts to concentrate in the metropolis. If, then, we agree to leave these counties out of consideration, it is found that almost all the agricultural counties show pauperism rates above the average, while the list of those with rates below the average includes all the manufacturing counties of the north-east. Thus Limerick, Waterford, Wicklow, Carlow, Kilkenny,

Meath, Louth, Cork, Wexford, Kildare, Tipperary, King's and Queen's Counties, West Meath and Longford stand high as regards pauperism, while Down, Tyrone, Antrim, Armagh and Londonderry are low. This result is also confirmed to some extent by a consideration of the former occupations of those relieved, it being found that "upwards of one-half of the men in receipt of relief were, or had been, agricultural workers or casual labourers." (7)

If we now lastly compare the pauperism with the insanity rate, a high degree of correspondence becomes evident. Thus Waterford, which gives the highest rate of insane in institutions, gives also the highest but one of pauperism, and all but two of the counties which stand over the average in pauperism are also over the average in insanity. The same general correspondence is also found at the other end of the scale, the most flagrant exception being in the case of Kerry, which stands fourteenth in the scale of pauperism but only thirtieth in that of insanity. No such correspondence exists between the insanity-rate and the rateable valuation of the counties, about the same proportion of counties with a high insanity-rate being found amongst those the rateable valuation of which is above, as amongst those in which it is below, the average; while Waterford, with its high insanity-rate, stands well up in the scale of valuation. It may be added that there is so little difference in the rate of wages paid to agricultural labourers in different parts of Ireland, that no useful indication as to the relative wealth of the counties can be derived from this source.

There is, however, another set of statistics which may have a bearing on the subject, and which is interesting for other reasons, *viz.*, those showing the emigration rate (9). Figures are available indicating the ratio to the average estimated population of all the emigrants who left Ireland from May 1st, 1851, to December 31st, 1910, the proportion for the whole of Ireland being 78·2 per 100. Twelve counties show rates above this average, the highest of all being Kerry, while twenty counties are below the average, with Dublin at the bottom. The eight which head the list are Kerry, Clare, Cork, Tipperary, Limerick, Longford, Galway and Leitrim, while Donegal, Armagh, Wexford, Louth, Down, Kildare, Wicklow and Dublin are the eight lowest. Of the provinces,

Munster has yielded the largest proportion of emigrants, 104·8 ; Connaught comes next with 84·8 ; then Ulster with 66·7 ; and lastly Leinster with 53·8. The *à priori* expectation that poverty would increase the proportion of emigrants is not realised in all cases, as although Kerry and Clare head the list, Cork, Limerick and Waterford stand high also. Still, comparing the emigration rate with the rateable valuation of the different counties, it is found that of the twelve with an emigration rate above the average, no less than nine stand low in the valuation scale, with Mayo at the bottom, while seven of the same number show a pauperism above the average. The correspondence as regards pauperism is not absolute either, however, as Dublin and Wicklow, which stand respectively third and fourth on the pauperism scale, have yielded a smaller proportion of emigrants than any other counties in Ireland.

Emigration has been so constantly, and no doubt rightly, assigned as one of the chief causes of the steady increase in the relative numbers of the insane in Ireland that a comparison of the emigration scale with that showing the prevalence of insanity should be interesting, since it might be expected that those districts from which most emigrants have been drawn would be those in which insanity is most prevalent. As regards the provinces this is nearly but not quite the case, the order in relation to the prevalence of insanity being: Munster 6·1 per 1,000, Leinster 6·0, Connaught 5·2, and Ulster 4·2, so that Leinster, instead of being last, stands second ; but amongst the counties there is some slight correspondence between the two rates, though with notable exceptions. Thus of the seventeen counties yielding the largest number of emigrants no less than fourteen stand high in the insanity scale, but on the other hand Kerry, which heads the emigration list, is nearly at the bottom as regards insanity, and Leitrim and Mayo, high in the former, are low in the latter. It is not a question of the peculiar conditions of the Atlantic seaboard in this case, however, as Clare is high in both lists, while Donegal occupies exactly the same position low down in each. But upon the whole the theory of the effect of emigration on the insanity-rate derives only a trifling support from these figures.

I shall not spend much time over the age-distribution, more especially as the last available figures (6 and 7) are ten years

old; but it may be mentioned that the average number of persons over sixty in the whole country in 1901 was 109·5 per 1,000, and that although the difference between the highest county (Monaghan, 138·1) and the lowest (Dublin, 71·8) is very considerable, the high rates are fairly evenly distributed over the country, except that counties containing large towns tend to gravitate to the bottom of the list. As regards the incidence of insanity, there appears to be no definite relation between it and the number of aged persons in Ireland, as the counties whose insanity-rate is above the average are fairly evenly distributed over the list of counties arranged according to the proportion of aged persons. The same applies to the relation between insanity and the general death-rate (10), though here the four counties—Waterford, Kilkenny, Westmeath, and Monaghan—which head the insanity list stand also very high as regards their death-rate, while Mayo, Leitrim and Kerry, with their low insanity-rate, are near the bottom of the scale of deaths. On the other hand, Antrim and Armagh, with a small ratio of insane, are second and third as regards death-rate (Dublin being first, with 22·1 per 1,000), while Clare, which is sixth on the insanity list, is last but one as regards death-rate. It may be added that the general death-rate for the whole country is 17·2, and that the figures are those for 1909, the latest available year.

In view of the connection which has been supposed to exist between the tubercular and the neuropathic diathesis, it may be of interest to say a few words about the distribution of the tubercular death-rate (11). That for the whole country in 1909 was 2·4 per 1,000, and of the provinces Leinster comes first with 2·8 (largely owing to Dublin, which heads the list of counties with 3·6 per 1,000), Munster follows with 2·5, then Ulster (2·4), and lastly Connaught, which only shows 1·8. The order of the provinces therefore differs from that given by the insanity-rate, in which, it will be remembered, Munster leads off and Ulster is lowest. Taking the rate by counties, also, it does not appear that there is any correspondence, for although Waterford and Westmeath have a high tuberculosis death-rate, so also have Antrim, Londonderry and Armagh, while Kilkenny, Carlow and Cavan are low in the tuberculosis scale. The proportion of counties with an insanity-rate above the average is also practically the same amongst the counties which

exceed and those which fall below the tuberculosis average of the country. The theory of a connection between the two morbid conditions therefore derives no support from Irish statistics.

It now only remains to consider in relation to the incidence of insanity the two kindred subjects of crime and alcoholism. From serious crime, except in connection with agrarian matters, Ireland is singularly and increasingly free, as is shown by the closure of a number of convict prisons and the small number of convicts—271 on December 31st, 1909. But unfortunately the same cannot be said as regards petty crime, and the number of indictable offences committed being accepted, in the words of the Registrar-General, as "the most reliable standard for the estimation of the prevalence of crime in a country," it must be admitted that Ireland, with its average of 222·61 per 100,000 (taking the annual average of the five years 1905–1909 inclusive) (12), compares unfavourably with the sister island.⁽³⁾ When the counties are studied it is found that Dublin possesses the bad eminence of heading the list with the enormous proportion of 739·26, the next county on the list, Antrim, showing only 385·90, while the third is a rural county, Kildare (226·22), the position of which on the list is due to the fact that it contains the Curragh Camp. Only these three counties exceed the average, and it is evident that Irish criminality mainly lies at the door of Dublin and Belfast cities, which in the year 1909 contributed no less than 5,257 indictable offences (considerably more than half) to a total of 9,873 for the whole of Ireland. In the same year Cork city yielded only 212, while the number of indictable offences committed in Limerick, Waterford and Londonderry are negligible. As regards the distribution of crime in the remaining counties, it may be noted that those in Connaught are low in the scale, with the exception of Galway; and, indeed, if Clare be neglected, the poor counties of the western seaboard are remarkably free from crime, Donegal and Mayo standing lowest in all Ireland, the last-named with only 58·85 offences per 100,000. In general the counties containing the larger towns tend to stand higher in the list, but there is no special exemption from crime in the agricultural counties, nor are those in which much manufacturing is carried on necessarily very criminal, Armagh and Down, for instance, being placed low in this respect. As regards the relation between

criminality and insanity, a certain amount of correspondence can be made out. It is true that of the three counties whose criminal record exceeds that of the country at large only one, Dublin, has a high insanity-rate; but if the list of counties placed in order of criminality be divided in half it is found that of the sixteen counties with the higher prevalence of crime no less than thirteen have an insanity-rate above the average, as against eight in the remaining half of the list, though on the other hand Antrim, Kildare and Londonderry are low in the scale of insanity. The conclusions to be arrived at are that as Dublin, Belfast and Cork are the only Irish cities in any way comparable to the large towns of the north of England, the distribution of criminality in Ireland follows the same rule as that in the sister country, and that a certain, though slight, general relation between the prevalence of criminality and that of insanity appears to exist.

A subject closely allied to criminality is that of alcoholism, which occurs, as we have seen, in two forms, not necessarily corresponding in their distribution, *viz.*, drunkenness and chronic alcoholism; the former being due to what Sullivan calls "convivial drinking," the latter in large measure to "industrial drinking." As regards the latter, the estimate of its prevalence is made from the proportion of deaths in a district set down as due to "alcoholism and delirium tremens" together with those ascribed to cirrhosis of the liver. The combined figures for the whole country were 504 for 1909, or 115 per 1,000 of the general population (13). This is a lower average than that of any English county except Cornwall (on the figures for the decennial period 1891 to 1900 quoted by Sullivan [14]), and amply confirms the opinion which I have long held on general grounds, *viz.*, that there is very little chronic alcoholism in Ireland as a whole. Unfortunately there are no statistics at present available for the counties individually, so that minute comparison is not possible as to the distribution of alcoholism in the country itself; but as regards the provinces (12) it is found that Leinster alone is above the average for the whole of Ireland, giving 16.28 per 100,000, Munster coming next with 11.13, then Ulster with 9.81, and Connaught with 7.37 only. There is thus no exact correspondence between the provincial distribution of alcoholism and insanity, except that both prevail to a greater extent in

Leinster and Munster than in Connaught and Ulster. But the amount of chronic alcoholism being so small, it cannot greatly influence the insanity-rate.

If, however, the proportion of chronic alcoholism is a small one, the same cannot, unfortunately, be said with regard to drunkenness. The figures available on this point are those which give the numbers of persons proceeded against for drunkenness, as shown by the criminal statistics, and the annual average for the five years 1905-1909 inclusive (15) is no less than 17.22 per 1,000—a rate higher than that of any English county except Durham. This combination of a high drunkenness-rate with a low alcoholism-rate indicates pure convivial drinking, and implies that in Ireland there is little or no “industrial drinking” in the sense defined by Sullivan. When we compare the drunkenness-rate of the individual counties, however, it is found that drunkenness is actually less prevalent, upon the whole, in those containing the largest towns than in the rural counties, though here again the counties of Connaught stand low in the scale, Mayo being the least drunken county in Ireland. Eighteen counties are above the average of the country, and of these fifteen contain no large town, the other three being Limerick (which heads the list with 28.47—a rate higher even than that of Durham), Londonderry and Cork. (It will be remembered, however, that Kildare contains the Curragh Camp.) Down and Antrim, with Belfast, stand respectively twenty-fourth and twenty-fifth on the list, and Dublin lowest but two. It further appears that, apart from Mayo, drunkenness is fairly evenly distributed throughout the country.

We now come to a point which touches on the vexed question of alcoholism in its relation to insanity, but it is impossible to consider this at any length here. *A priori*, as chronic alcoholism is admittedly by far the more dangerous form in this respect, and is rare in Ireland, one would not expect a large proportion of cases of mental trouble from this cause, and this expectation, as we shall see, is fulfilled, not only by the smallness of the percentage of cases attributed to alcohol, but also by the want of any marked correspondence between the local prevalence of drunkenness and that of insanity. It is true that six of the eight counties which head the insanity list stand high in that of drunkenness, but Carlow and Meath, which are

respectively fifth and seventh in the former, are only twenty-seventh and thirty-first in the latter, while Londonderry, Tyrone and Kildare, high in the list of drunkenness, are low in that of insanity, and the counties above the average in insanity are distributed in exactly equal proportions between those over and those under the average of drunkenness. It may therefore be concluded that the distribution of drunkenness throughout the country bears little, if any, relationship to that of insanity. When we next consider the proportion of admissions to the Irish district asylums the causation of which is ascribed to alcohol, we find that the average for the five years 1905-1909 is only 10·3 *per cent.* As the probabilities are all in favour of over-estimating rather than under-estimating the influence of alcohol as a causative factor, it may be assumed with some confidence that this figure is not too low; and, moreover, it corresponds roughly with the figures in a Table (16), which I had drawn up some years ago, giving the average for the five years 1902-1906 as 9·9 *per cent.* In attempting to compare the various parts of Ireland, the difficulty arises that in several instances one asylum supplies several counties, so that the separate county figures are not always available, and, moreover, the figures as given are not strictly comparable with the other series of statistics in the present inquiry, as they represent percentages of the number of admissions and not proportions of a fixed population. Such numbers will therefore appear to represent an unduly high ratio of insanity from alcohol where the general insanity-rate is low, and the comparison of counties is somewhat vitiated. With this warning, however, it may be stated that nine counties show a proportion above the average, and twenty-three below the average, of cases at all events associated with intemperance. The highest on the list are the grouped counties of Dublin, Louth and Wicklow, with 21·5 *per cent.*; and the others above the average are, in order, Wexford, Waterford, Carlow and Kildare together, Cork, and Limerick, the last of which, though far ahead as regards drunkenness, is thus only ninth in the scale of insanity attributed to intemperance. The lowest on the list are the grouped counties of Longford, Meath and Westmeath, which show only 4 *per cent.*, and then, in ascending order, Galway and Roscommon together, Armagh, Kilkenny and Mayo. It will be seen that there is some little relation between the general distribution of insanity

and the percentage of admissions ascribed to alcohol, so far as they can be compared, as eight of the nine counties above the average in the latter respect stand also above the average of total insanity. The general conclusion which may be safely drawn from the facts is that alcohol possesses comparatively small importance as a cause of insanity in Ireland.

We have now reviewed in the rather superficial fashion which was alone possible under the circumstances the geographical distribution of insanity in Ireland in relation to that of some of the more important social and economic features which seemed likely to have a bearing on its causation, and it only remains to indicate very briefly the conclusions which may be drawn, though in some instances only tentatively.

It appears, then, that in Ireland insanity tends to prevail in the agricultural counties, and has a close relation—if special conditions be disregarded—to pauperism, which also prevails in the rural districts. The distribution of insanity corresponds to but a very small extent with the emigration-rate. It bears some little relation to the prevalence of criminality, and to that of chronic alcoholism, so far as the statistics of the latter are available. No appreciable relation is apparent between the insanity-rate and density of population, rateable valuation of land, distribution of the number of aged persons, death-rate (either general or tubercular), or drunkenness. The amount of insanity ascribed to alcohol is small, and its distribution has no relation to that of drunkenness, but some to that of insanity in general.

Secondarily, it may be noted that pauperism in Ireland bears little relation to poverty and does not correspond to the rateable valuation of the land, nor is it closely connected with emigration. Criminality, as in England and Wales, is greatly in excess in the large towns, the rural districts being relatively free; but on the other hand, in Ireland drunkenness is found to be more prevalent in the rural counties, which is the reverse of the condition across the channel.

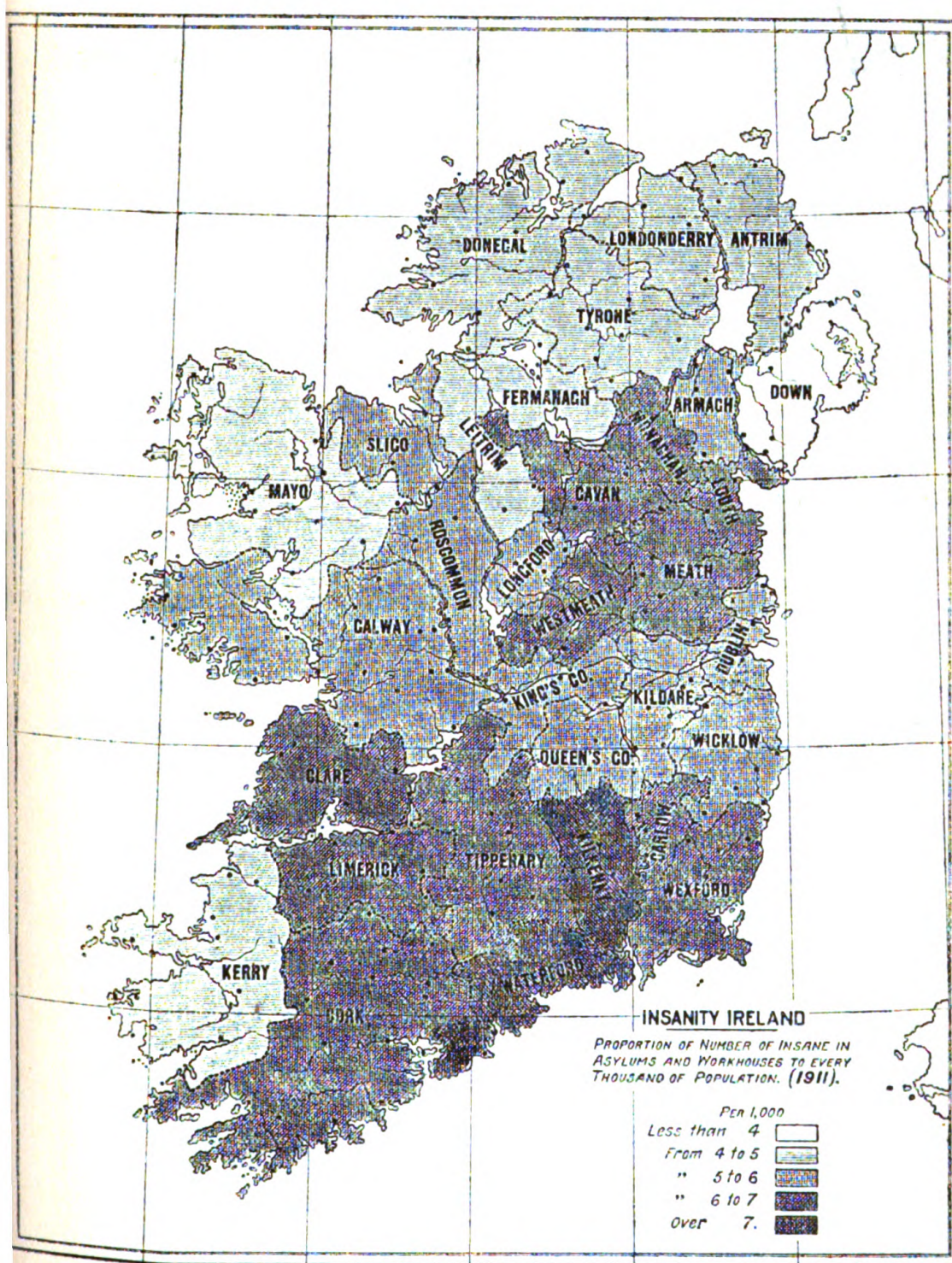
There are various other points which might be touched on, but I have already detained you too long, and it only remains for me to thank you for your attention.

(¹) It may, however, be mentioned that the average daily number of paupers relieved in 1908 per 1,000 of the population was 23·1 for Ireland as against 25·7

for England. Scotland gave only 22·7 (see *Statistical Memoranda and Charts prepared in the Local Government Board relating to Public Health and Social Conditions*, 1909, p. 52, Chart I [Section iv]).—(2) It is stated that the poor of Connaught have an exceptional horror of the workhouse.—(3) The greater criminality of Ireland as compared with England is probably largely apparent, and due to the more effective policing of the rural districts and small towns in the former. The same applies also to drunkenness.

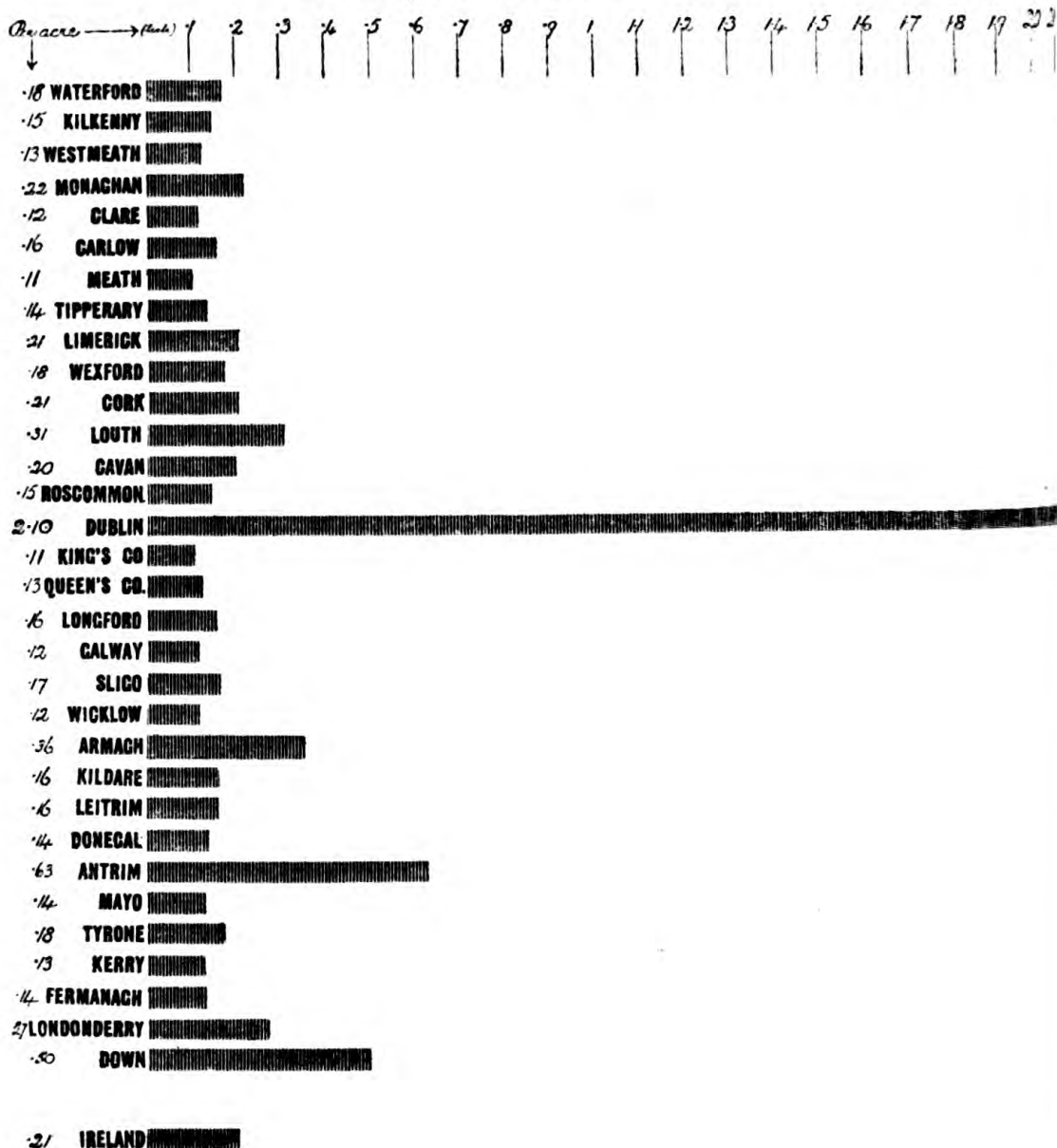
References.

- (1) W. Bevan Lewis.—“The Origins of Crime,” *Fortnightly Review*, vol. liv, 1893, p. 329 ff.
- (2) *Fifty-Ninth Report of the Commissioners in Lunacy*, 1905, pp. 4 ff. and 13 ff.
- (3) W. Bevan Lewis.—“Alcoholism, Crime, and Insanity,” *Journal of Mental Science*, vol. lii, April, 1906, p. 209.
- (4) W. C. Sullivan.—*Alcoholism*, p. 57 ff.
- (5) *Census of Ireland for the Year 1911: Preliminary Report*, 1911.
- (6) *Royal Commission on the Poor Laws and Relief of Distress*. Appendix Vol. xxi, “Statistics Relating to Ireland,” 1910, Table viii, p. 23.
- (7) *Idem*, p. 13.
- (8) *Census of Ireland*, 1901; Part II, “General Report”; diagram 3, p. 94.
- (9) *Emigration Statistics of Ireland for the Year 1910; 1911*, Table III, p. 6.
- (10) *Forty-Sixth Annual Report of the Registrar-General for Ireland*, 1910; Table III, p. 7. Dublin and Belfast county boroughs have been included in the counties of Dublin and Antrim respectively, and the whole of Tipperary county taken together.
- (11) Calculated from the figures given on pp. 144–5 in the last-mentioned Report.
- (12) *Judicial Statistics, Ireland*, 1909; Part I, “Criminal Statistics,” 1910, Table E, p. 36.
- (13) *Forty-Sixth Annual Report of the Registrar-General for Ireland*, 1910, pp. 139, 141.
- (14) W. C. Sullivan.—*Op. cit.*, p. 66.
- (15) *Judicial Statistics, Ireland*, 1909; Part I, “Criminal Statistics,” 1910, Table E, p. 37.
- (16) W. R. Dawson.—“Alcohol and Mental Disease,” *Transactions of Roy. Acad. of Med. in Ireland*, 1908, p. 364.



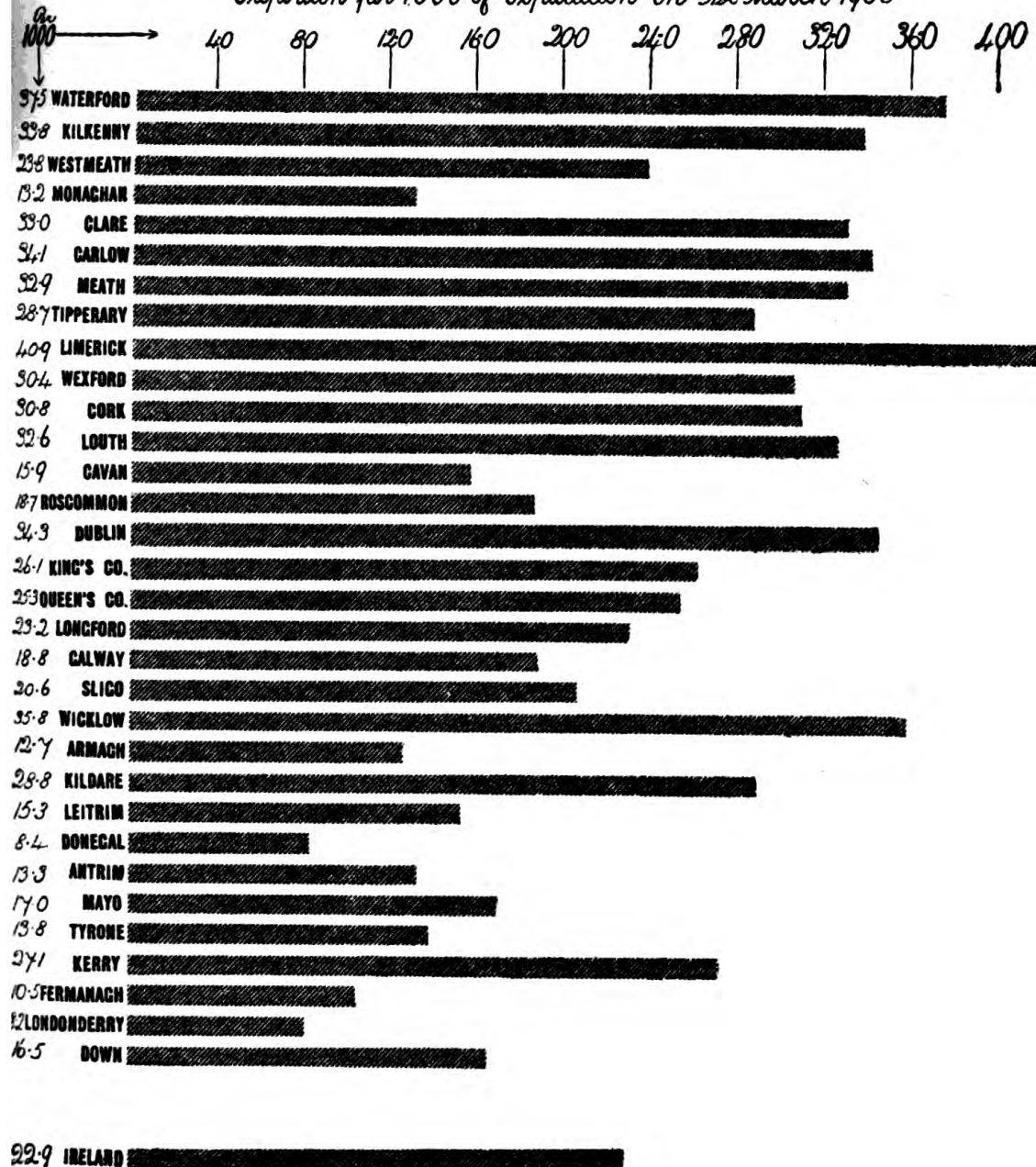
DENSITY OF POPULATION IRELAND

Number of Persons Per Acre

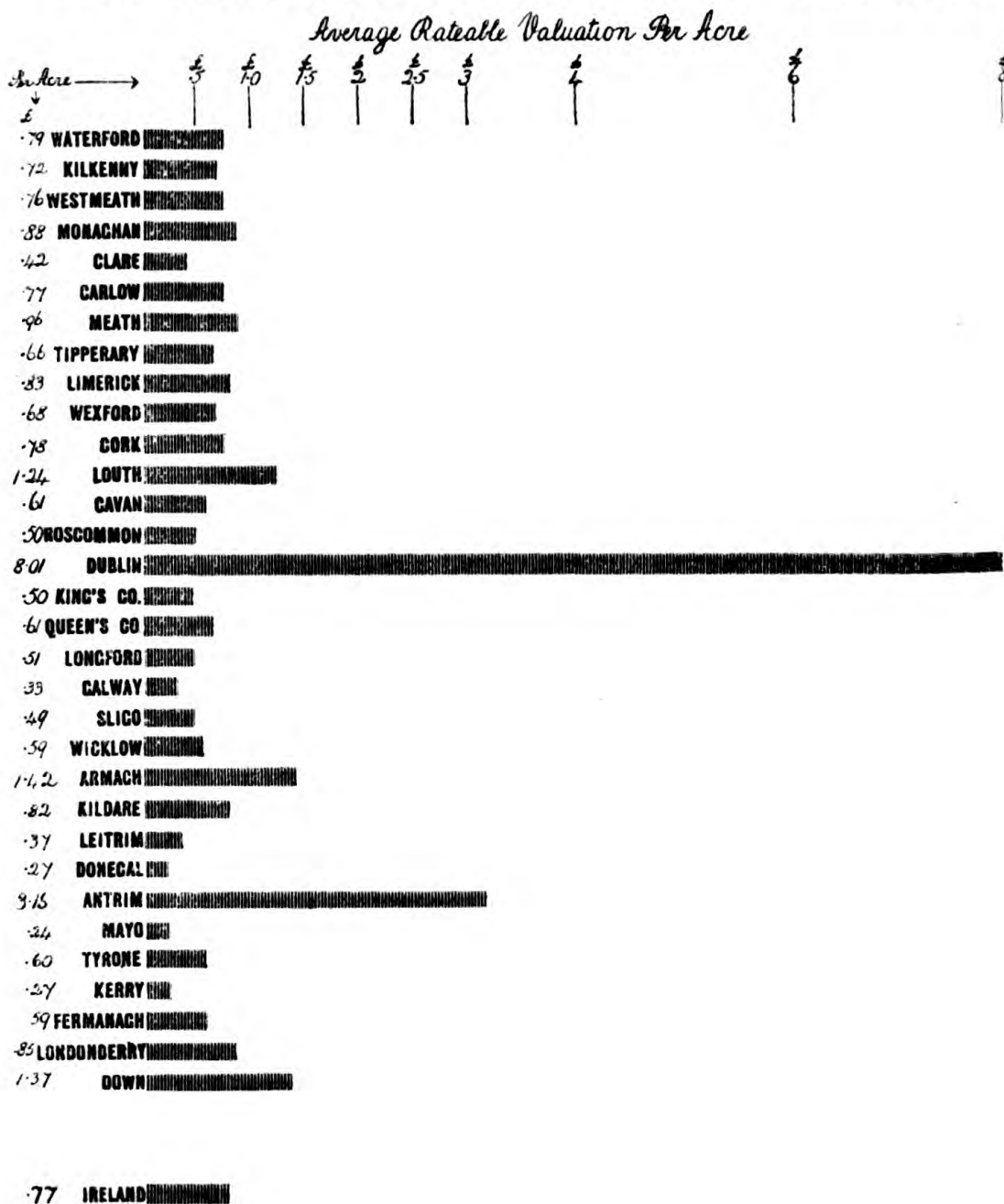


PAUPERS. IRELAND.

Proportion per 1000 of Population on 31st March 1906

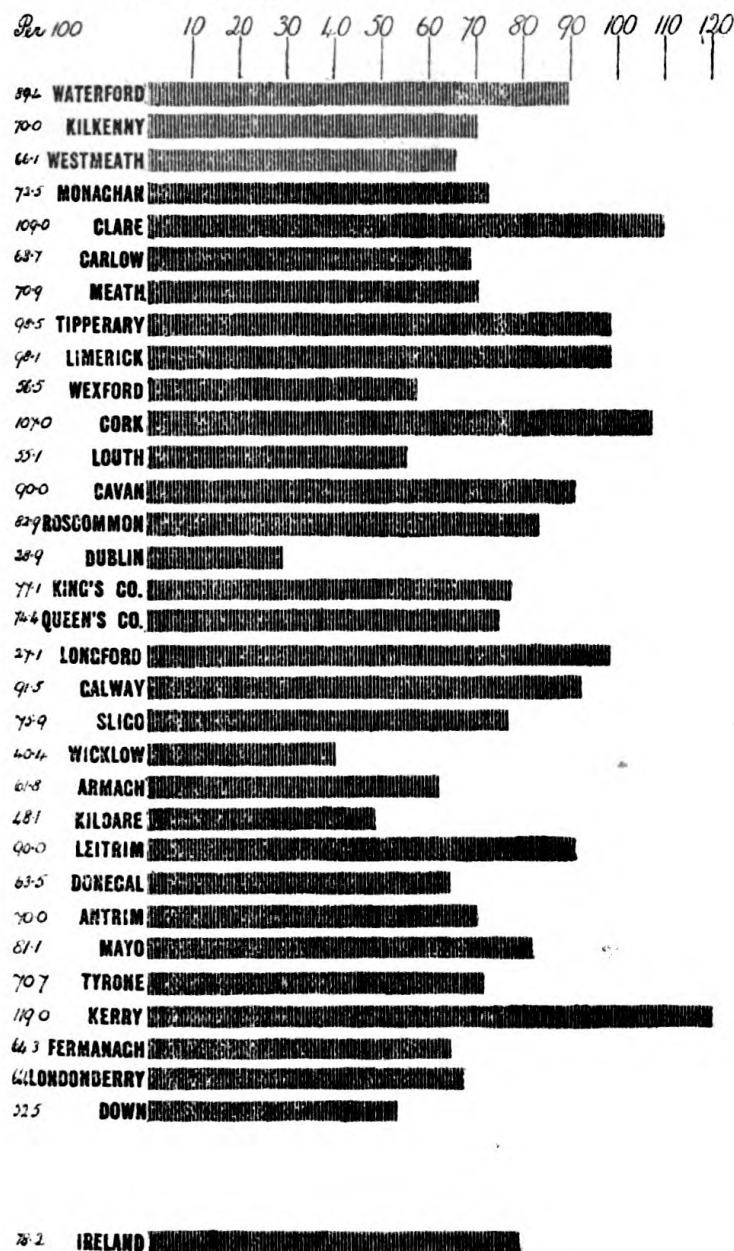


COMPARATIVE VALUATION IRELAND



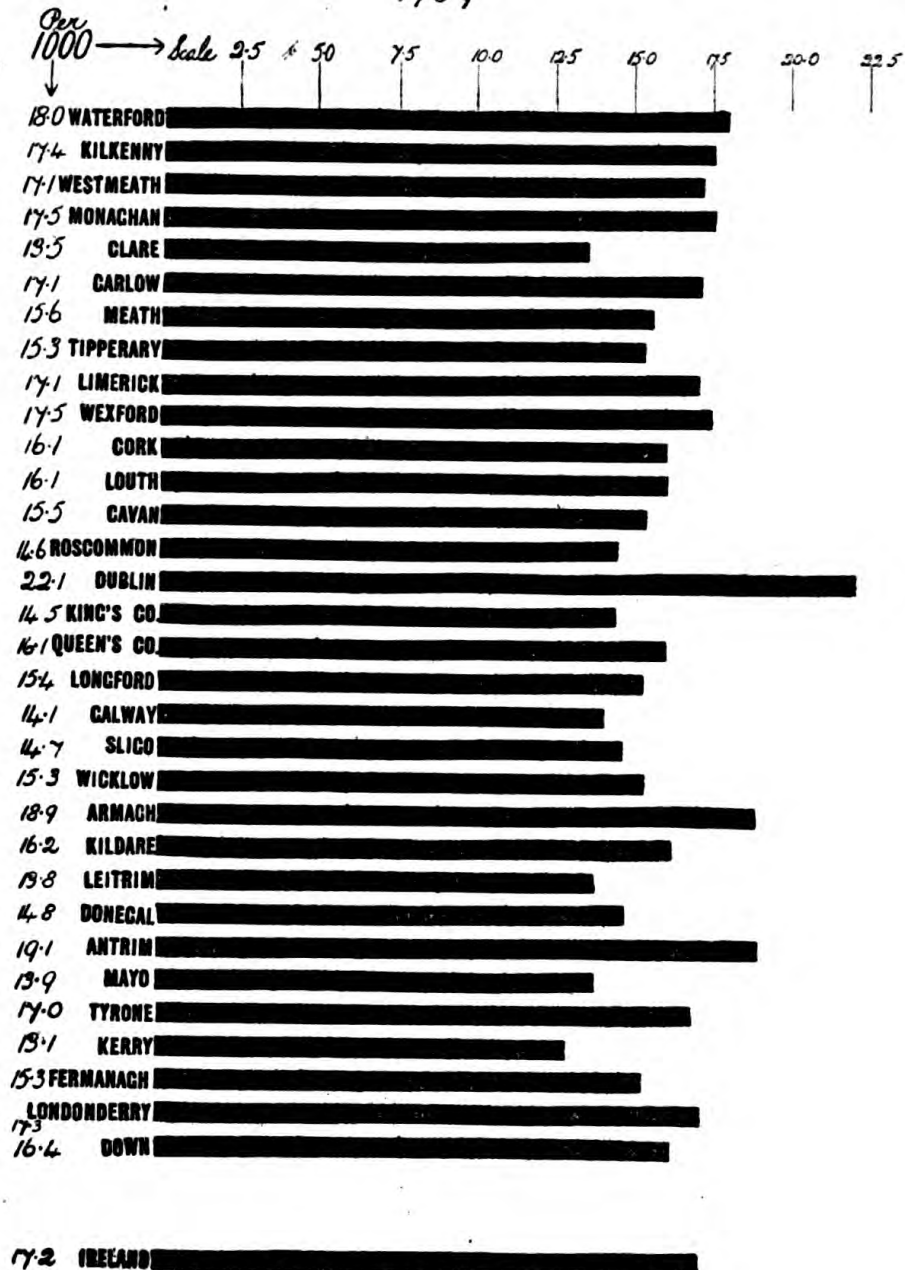
EMIGRATION. IRELAND.

Proportion of Emigrants (from 1st May 1901 to 31st December 1901) to every 100 Estimated Average Population.



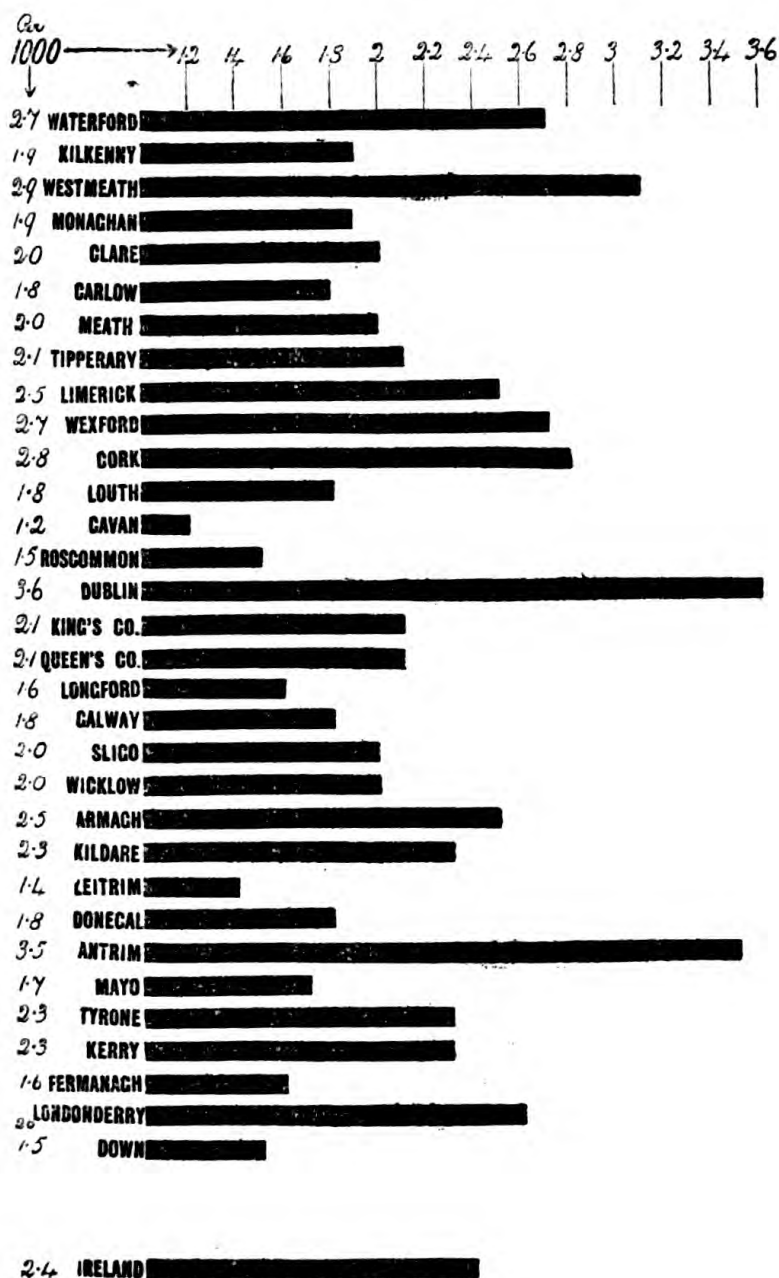
GENERAL DEATH-RATE IRELAND

1909

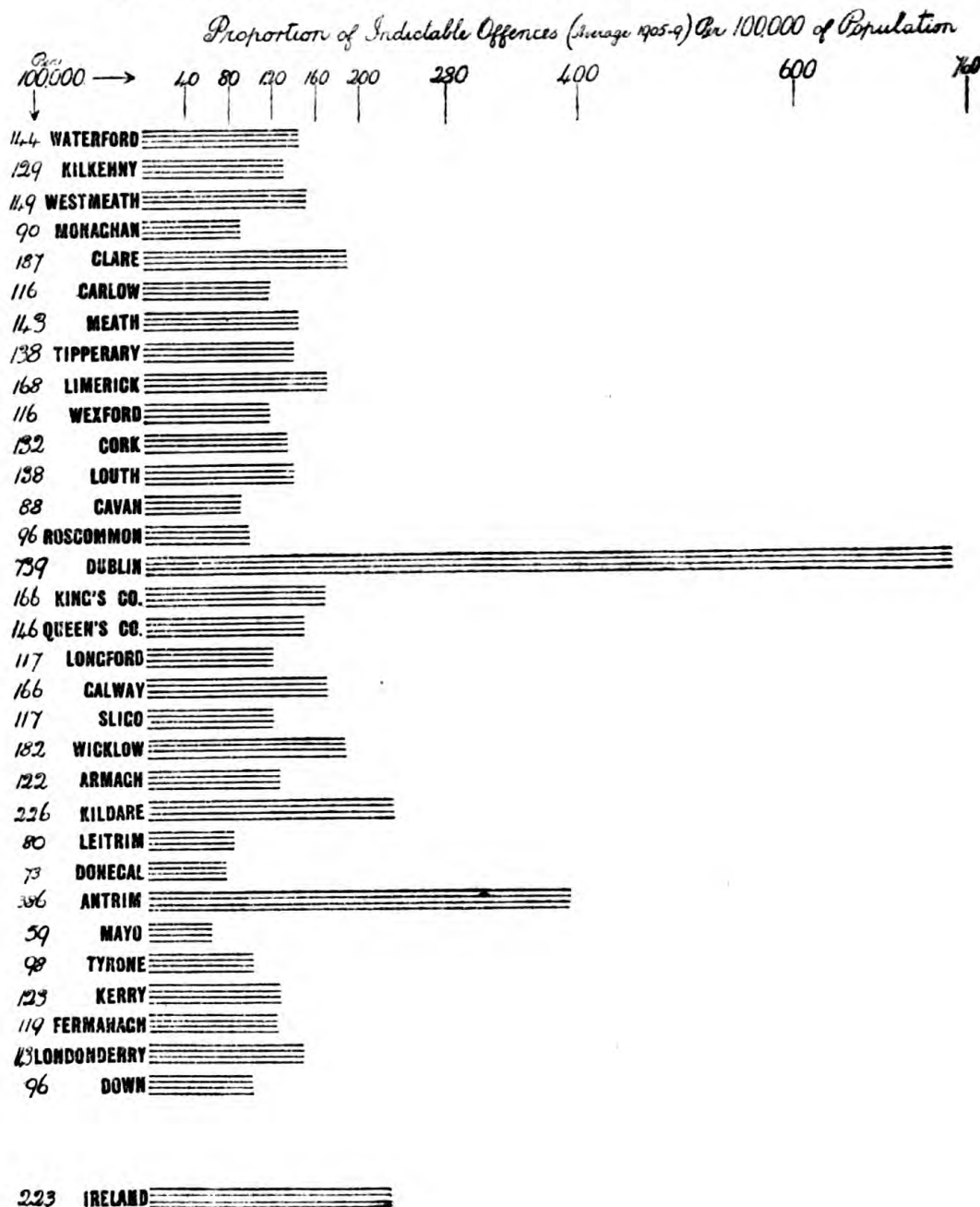


TUBERCULOSIS DEATH-RATE IRELAND

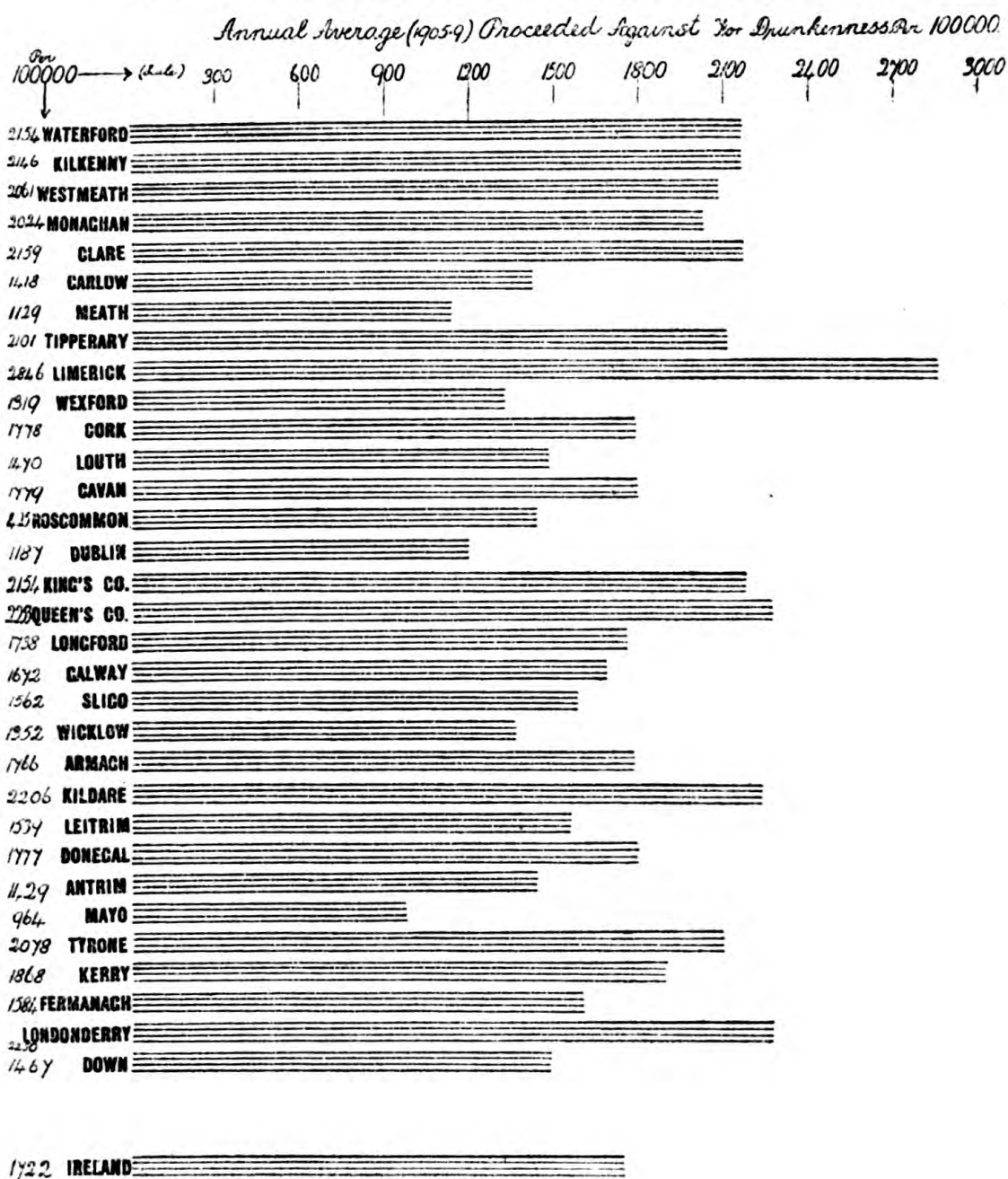
1909



INDICTABLE OFFENCES IRELAND



DRUNKENNESS IRELAND



The Personal Equation in Alienism. By THOMAS DRAPES, M.B., Medical Superintendent, Enniscorthy Asylum.

I FEEL that some kind of apology is due for my venturing to bring before a society which concerns itself mainly with practical questions what I fear will be regarded as a decidedly unpractical paper. Still, it may not be without advantage once in a way to step aside from the more arduous path of observational or experimental investigation in the region of psychiatry with its exacting conditions, and view things from a more general standpoint. And, while confessedly it may lead to no practical outcome, if by challenging some acknowledged views, and raising a breeze of controversy, however gentle, which may ruffle the quiescent surface of the pool of accepted opinion, it should at least suggest some grounds for a reconsideration of certain important questions connected with psychology and psychiatry, the object of the writer will be achieved.

I propose to consider the question from two standpoints :

(1) The personal equation as regards the observer, and (2) the personal equation as regards the observed.

First as regards the observer. In general medicine we are all quite familiar with this factor in the diagnosis and treatment of disease. It is, in fact, what distinguishes one medical man from another. A case which is diagnosed by one practitioner as enteric fever, by another is regarded as an example of the gastric form of influenza. In the protean forms of multiple rheumatoid arthritis, which is still, I fear, one of the *opprobria medicinæ*, one authority regards uric acid as the *fons et origo mali*, while others attribute these maladies to irritative and destructive lesions in the spinal cord—two widely different views, on which as widely different methods of treatment are based. And if in general medicine individuality of character, of thought, of power of observation and reasoning, combined with a natural and instinctive bias in certain directions more or less assiduously cultivated, until what was at first merely a tentative theory becomes ultimately conviction, if, in other words, the personal equation has such a preponderating influence where the material upon which opinion is divided is so patent, so obvious, as to be appreciated by even an untrained

observer, how much more likely is this to be the case in the department of psychology, where so much of the subject-matter is hidden from our view, where there is so much that is elusive, so much contestable, and where too often opinion is little more than conjecture, a bow drawn at a venture which may or may not eventually be found to have hit the mark? Is not this a matter on which most minds which have studied the question will be found to agree? And while, happily, in psychological science there has now accumulated a vast amount of ascertained knowledge constituting a bedrock of fact, a solid foundation for building upon, the same cannot always be said of the superstructure, or rather, superstructures, which have been erected thereupon, a good deal of which must be regarded as of the hay, wood, and stubble class, destined for only a transitory existence, and to be consumed sooner or later by the fire of destructive criticism.

We are professedly psychologists. Psychology is the science of mind. What is mind? In his deeply interesting presidential address in 1908 Dr. Mercier dealt with this question with that thoroughness, ability, and lucidity which characterise all his writings. Yet even he, distinguished psychologist though he be, seemed unable to quite make up his mind which to adopt of the three current hypotheses, dualism, monism, or parallelism, although he intimated that his leanings were rather in the direction of dualism, a confession of faith which not improbably to some at least of those who heard him occasioned some surprise. It may be in the nature of things impossible, but it certainly is regrettable that psychologists as a body are unable to come to any general agreement on this most important subject. Dualism may be regarded as the theological view, the oldest, and therefore to be treated with the veneration due to antiquity and to the many great minds which have held and still uphold it. Monism is the most modern view of the advanced evolutionist. Parallelism is a sort of halfway house between the two. In the chronicles of science where, on questions of importance, theology and evolution have come into conflict, evolution has usually come off victorious. In this instance I, for one, shall not be surprised if, sooner or later, history will repeat itself, but still not without the possibility of a reconciliation being found between the two.

The question, What is mind? will probably remain unanswered

to the end of time. This, however, need be no reproach to students of mind. In this respect psychologists are neither worse nor better off than physicists. Physicists are concerned with the phenomena of the various forces of nature, so-called, gravitation, heat, light, electricity, etc., but they know nothing of what these forces really are. Whatever their effects, these various forms of energy are themselves invisible, intangible, immaterial, and, I may add, in essence unknowable. But there is a general agreement among physicists to accept a working hypothesis with respect to them, *viz.*, that they are, one and all, different modes of motion, an hypothesis which fits in with most, if not all observed phenomena, and which gives unity and solidarity to all physical science. They are, therefore, quite warranted in assuming the correctness of this hypothesis, until at least it is displaced by a better one. Is there any reason why psychologists should not follow their example with respect to mind? I am, of course, aware that many of those psychologists who hold the theory of parallelism (or even of dualism) are prepared to admit that neural energy, such as is in operation, *e.g.*, in the case of reflex action, is, or may be, a mode of motion. But farther than this they refuse to go. They regard reflex action as of a purely physical type concerned with impressions and movements only, but the moment mental action comes into operation there they draw the line. There must be no blending of the psychical with the physical. I must say I fail to see the force of that contention. There is no such dividing line in nature; the so-called "physical" and the mental functions of the nervous system really merge imperceptibly into each other, and there seems no substantial reason why we should not regard mind itself as simply the highest force in nature—highest in dignity, in complexity, in capacity for achieving results—but still a force quite analogous to other forces, a form of energy, a mode of motion? Is it outside the bounds of possibility that psychologists should agree to adopt this hypothesis, even provisionally, thus bringing psychology into line with other departments of science? So long as "lunacy" was regarded as something quite exceptional, in fact almost outside the pale of medical science, little or no advance was made in either the conception or the treatment of insanity. But as soon as psychiatry supplanted lunacy, thus admitting insanity within the fold of medicine, there has been progress all along

the line. Would it not be well if our ideas as regards normal mentality were to be subject to a similar transformation to that which those respecting the abnormal have undergone?

Moreover, the tendency of modern scientific thought is to regard what used to be considered separate forces as merely modifications of one single force operating under different conditions. And further, whereas matter used to be looked on as consisting of a number of distinct and indecomposable "elements," the latter-day tendency is to accept, at any rate as a high probability, that there is really only one element, of which all the other hitherto regarded as distinct bodies are but variants. Again, atoms were for long conceived of as the final and undecomposable particles of which the elements were constituted, and the atomic theory seemed to form the *ultima thule* of our knowledge with respect to the ultimate composition of matter. But further researches of physicists have established the high probability, almost amounting to certainty, that atoms, themselves so minute as to have merely a theoretical existence, have a more or less complicated structure, and are built up of still smaller particles, called "corpuscles," of inconceivable tenuity, in fact very little more than a mathematical deduction, but yet whose mass has been calculated to be one-thousandth part of that of a hydrogen atom, the lightest chemical atom known, and their velocity from 10,000 to 90,000 miles a second.

But one step farther. It is now some little time since Lord Kelvin urged that molecules are vortex-rings, or points of motion, in a universal frictionless fluid, the ether, and that the differences in the mass and properties of one atom as compared with another may be simply due to the different speeds of rotation of these vortex-rings. It is further contended that this motion is electric in its nature, and that the corpuscles of which atoms are constituted are unit charges of negative electricity, hence called "electrons"; that mass, or quantity of matter, is simply the ether carried along by the corpuscle in its motion, and that its amount depends upon the velocity of motion in the corpuscle; that "the atoms of matter themselves are made up of the same negative charges, or corpuscles, each aggregation of corpuscles being surrounded by a sphere of positive electricity; that, consequently, matter, in its last analysis, is identical with electricity. . . . Matter is thus

explained away as being electricity, and nothing but electricity." (*The New Knowledge*, pp. 187, 248.)

This theory, if true—and scientists have gone so far as to say that it is either this theory or nothing—is startling in its import. It maintains the practical identity of matter and motion. Matter is motion. And so the great gulf hitherto fixed between the material and the immaterial is bridged over. The two, in fact, become fused together; neither is greater nor less than the other. That once admitted, where is the insuperable difficulty in adopting the conception of mind as a mode of motion? And that just as matter in its various forms, and possessing the properties we are familiar with, such as extension, inertia, impenetrability, elasticity, attractions of various kinds (gravitation, cohesion, chemical affinity, etc.), can be resolved into motion, which is immaterial, and *vice-versâ*, so we can, without any great difficulty, assume the possibility at least of similar relations existing between the immaterial essence, mind, and the physical substratum, which is believed to form its material basis, the cells of the cerebral cortex. In a sense, the sense in which matter is motion, and molecules but vortex-rings of rotatory movement, we can conceive of mind as being identical with cerebral molecular movements; mind and matter, so far from being absolutely distinct as up to this insisted upon, so distinct and differentiated that it was not permissible for any direct connection between the two to be postulated, hardly even imagined, may really be one and the same thing. Matter is motion; mind is a mode of motion; mind is, or at any rate may be, matter. Granted that the theory as laid down by physicists is sustainable, is there any flaw in the syllogism?

Rank materialism we shall probably be told. Granted; but in reply we say it is equally rank immaterialism. If, as this theory assumes, the material and the immaterial are one and the same, the objection loses its point. If one term is disreputable, so is the other. This time-honoured reproach, therefore, should receive its quietus.

Now, why is there such disagreement amongst psychological thinkers on this very important problem, the solution of which so vitally affects their views on the very subject-matter of their researches? The reason is the personal equation. There is a certain class of mind which shrinks from any theory which

would, as it were, reduce mental to the level of physical phenomena, a proceeding which they regard as more or less degrading to their conception of mind—a debasing of the intellectual currency. And so the theory of “parallelism,” or “concomitance,” has been propounded, and is probably that which is most generally accepted at the present day, at least by leading authorities in this country. This theory owes its promulgation mainly to the writings of Dr. Hughlings Jackson, although it was not originated by him, for he mentions the names of a number of other scientists who, he states, held it either previously or at the same time as himself. And if I venture to speak somewhat disparagingly of this theory, or to question its correctness, it is not from any want of respect for one whom we all regard as one of the most eminent, if not the most eminent, of our leaders of thought in the department of neurology, one whom we look up to as a great teacher, who in his writings combines as few writers have done the scientific and the philosophic elements of intellectual genius. The theory, however, having been launched, and generally adopted, must now stand upon its own merits, quite irrespective of its origin, and is to be examined and scrutinised from a purely impersonal standpoint. What is this theory? It is to the effect that all mental operations are accompanied by, contemporaneous with, but not produced by, not dependent on, the functioning of the highest cerebral centres. Is this theory worthy of science? It has always appeared to me that the man in the street is quite as capable of discovering it as any psychologist. He knows that he has a brain which has certain functions to perform; he also knows that he has a mind of whose operations he is conscious; and, like the Pickwickian genius who wrote on Chinese metaphysics, he “combines his information,” and has no difficulty in coming to the conclusion that the two processes go on simultaneously together. What is that but the doctrine of parallelism expressed, as it were, in the vulgar tongue? In fact, the theory is, properly speaking, no theory at all. Theory implies an explanation of facts, at any rate an attempt to explain them, whether it be correct or not; but this doctrine offers no explanation whatever; it is merely a statement of what every man knows—a truism, a platitude!

It would be difficult to estimate how many present-day psychologists hold respectively one or other of the three

current hypotheses. No doubt each has its following, and so our present conceptions of mind, the fundamental basis of psychological science, depend altogether on the individual mental attitude of the psychologist towards one or other theory. Such a position, however, can hardly be regarded as scientific.

Is it not time, considering the enormous advances which have been made in our knowledge of the structure and functions of the nervous system, with their associated mental phenomena, that psychologists as a body should come to some agreement on this fundamental question, which lies at the root of all their reasonings, and which must to a large extent determine their explanation of facts? Why should not they, following the physicists, adopt at least a consistent working hypothesis as regards the nature of mind, to be adhered to so long as it continues to be in agreement with observed facts, instead of speaking with discordant voices as hitherto? It should not be left at the present state of our knowledge to each individual thinker to determine for himself and to assume the responsibility of teaching others merely what is in accordance with his own individual mental bias, training, and education; it should not, in short, any longer depend on the personal equation.

There is another point of importance bearing on this question, also arising out of the conclusions of physical science. Evolution was up till recently regarded as limited to the organic world, the world of living things. But now it is claimed, and on very substantial grounds, that the inorganic world must also be comprised within its domain. Sir Norman Lockyer, by his spectroscopic researches, has shown that there is strong evidence that the elements as we know them on earth exist in a different condition in the sun and stars. That they, under the terrific temperatures of these incandescent masses, are broken up and decomposed into simpler forms. This is what is known as the dissociation of elements, and it depends absolutely on temperature. In the case of iron, for instance, Lockyer has stated that there is every reason to suppose that in the sun "we are not dealing with iron itself, but with primitive forms of matter contained in iron, which are capable of withstanding the high temperature of the sun after the iron observed as such is broken up." And the same is true as regards other metals and elements, including hydrogen.

From this dissociation according to temperature there has resulted, to quote from Prof. Duncan, "a stupendous evolution of inorganic matter beside which organic evolution is the affair of a day, and to which it is a mere appendix. By organic evolution we mean that the vast multitudes of plants and animals as they exist to-day are not specially created, but that they have all resulted from older, simpler forms, and these from simpler still, down and down to some ancient simple type from which they all have probably evolved. So by inorganic evolution we mean that the eighty odd elements of matter as we know them on earth to-day were not specially created, but that, like the plants and animals, they have truly evolved from simpler and still simpler types, back to some really simple element from which they have all evolved through infinite æons gone by. Furthermore, we wish to show that the evolution of living things is not parallel to, but the continuation and end of, inorganic evolution" (*op. cit.*, p. 206). Then, as regards life: "The great law of continuity forbids us to assume that life suddenly made its appearance out of nothing, and tells us that we must look for the element of life in the very elements of matter, for the potentiality of life should exist in every atom" (*ibid.*, p. 213).

Now, what I venture to urge is that the same reasoning may legitimately be applied in the case of mind. Man is, admittedly, the highest product of organic evolution. Man's highest endowment is mind. Is it at all likely that at some particular moment during the æons of evolution, inorganic and organic, mind suddenly made its appearance, and attached itself to matter—we might ask where did it come from, had it a previous existence?—from thenceforth to run, as it were, side by side in parallel course with the evolving fabric of a certain part of the nervous system, and develop and expand to higher levels of complexity and perfection along with, but apart from, an analogous structural development? Is not such a hypothesis almost inconceivable? Is mind to be the one exception to the whole course of evolution? Continuous advance, with progressive differentiation, seems to be the principle underlying evolution. Is there any reason why we should not regard mind as its highest product—there must be some "highest"—the very acme and culminating point of this marvellous process? The direct product, no indirect or merely

parallel phenomenon. For is there any greater difficulty in the conception of mind as not merely correlated with, but inseparable from, if you like, the product of the highest evolved form of material substance, than in the conception of consciousness, in its most primitive form of a mere vague sentience to certain stimuli, as having its birth in the simplest and most rudimentary nervous system which can be detected in some of the lowest and earliest of living organisms?

The incarnation of the invisible and immaterial in tangible and visible form is a conception appertaining to more than one theology, and is the very basis and groundwork of the Christian philosophy. Might not we take a leaf out of the theologian's book, and instead of accepting only one particular instance of this incarnation, regard it as a widely prevailing, in fact, universal phenomenon? Why not, looking at the more recent theories of the nature of energy and the constitution of matter, regard matter generally in all its myriad forms as the incarnation of energy, whether it be the spiritual energy or essence of the theologian or what he would call mere physical, but which is, notwithstanding, none the less immaterial, energy with which scientists have to do? To adopt this would be only to widen the basis and amplify the sphere of the theological idea. No doubt the theologian might say, "Oh, what you preach is pure pantheism, a view we cannot possibly accept." And yet this is strange. The theologian assumes and asserts that God is everywhere. If that phrase has any meaning it must imply that the Deity is immanent in all things, and by what subtle distinction does the theologian differentiate between his own conception of a universal *pneuma* the very life and breath of all things, in whom we live and move and have our being, and the, at any rate, possible, if not as yet probable, theory which I have ventured to outline? Does not this form a common ground on which theologian and scientist, after long battling and conflict, which no doubt had its uses, may at last meet in friendly parley, and lay the foundation of at least an armistice, if not an as yet fully consummated peace? Why should it not form a starting-point from which may be argued out fateful conclusions, where the protagonists, to whichever side they may lean, should no longer find themselves at bitter variance, but animated with a spirit of mutual conciliation? What if the result of their

more or less prolonged cogitations should be to discover that they had been wrangling only about phantom entities of their own creation, and that they were really at one in the question of universal incarnation, which would form the reconciling element between the two opposing forces, and lead them to adopt a nobler conception of the universe, the Cosmos, than either had as yet entertained, as one grand Unity manifesting itself in myriad and multitudinous forms, whatever name men may give it, according to their various beliefs and opinions, be it matter, energy, life, mind, the unknowable, Nature, God ?

So schaff' ich am sausenden Webstuhl der Zeit,
Und wirke der Gottheit lebendiges Kleid !*

In classification we have another example of the effects of the personal equation. That there is need for some kind of classification is agreed on by all ; what should be the basis of classification is agreed on by none. And so we have scheme after scheme ushered into existence by one writer after another, framed according to the mental proclivities of each individual authority, all different, and each constructed, not on a single basis, but on sundry and diverse bases, pathological, ætiological, symptomatological, and so on, forming a veritable medley or hotch-potch, most embarrassing to the student of psychiatry. As regards symptomatology, one writer lays stress on certain groupings of symptoms which he regards as constituting special "varieties" of insanity ; another makes quite a different combination. This process has, I think, been somewhere compared with the phenomena of the kaleidoscope, and a very apt comparison it is. By merely rotating the instrument precisely the same elements of coloured glass are thrown into quite different forms and groupings, giving so many distinct pictures to the eye. And so this process of manufacturing new combinations of symptoms goes on indefinitely, and no finality is reached.

A new variety of insanity is announced. It is ushered into existence by some illustrious psychiatrist. It is accepted with acclaim by one class of mind, regarded as a new discovery by which diagnosis and prognosis will be in future rendered comparatively easy, the crooked shall be made straight, and the rough places plain. By another class of thinkers, no doubt

* And I stand at the thunderous loom of time,
And work for the Godhead his garb sublime !
(Prof. Webb's translation of Goethe's *Faust*.)

considered by the first as of an unprogressive, if not reactionary order of intellect, it is looked on with some distrust. They recognise only a new shuffle of the cards, a fresh grouping of shifting elements, which may be transient, may possibly, in some cases, be more or less permanent. They can find no certainty of data, not even an approach to certainty. The upholders of this new "variety" are by no means unanimous in their views as to what exactly constitutes it, what is essential to distinguish it from other varieties, what non-essential. Some are not even consistent with themselves. Result—in some asylums where no doubt the medical staff is thoroughly capable, 20, 30, 40, *per cent.* of the patients, or even more, are considered to be the subjects of this variety—how blind we have all been up till now—while in another, where there are equally capable and alert observers, only 5 per 1,000 such patients can be discovered. The doctrine of expectancy here finds a place; the eye sees what it goes to see; and so the pros find fresh illustrations of this "disease" in an ever-increasing proportion, if not in actually a majority of their patients, while in the case of the cons such a variety, if it can be admitted as having a specific existence at all, is looked on as a *rarissima avis*, and in their eyes all the cases which can be said with any show of accuracy to conform to the particular type as described by the adherents of this theory, would form but an insignificant minority of the aggregate of insane. Who shall decide which is right?

It would only be affectation not to admit that in these remarks I have been alluding to the vexed subject of dementia præcox, a subject which some no doubt think has been discussed *ad nauseam*. But surely it cannot but be a reproach to psychiatrists if they are unable to arrive at any consensus of opinion on such an important question as to whether not merely the term "dementia præcox," confessedly a bad term even by those who have adopted it, should be admitted into our nomenclature; whether, as a matter of fact, we are justified in regarding a certain arbitrary grouping of symptoms, and not always identical symptoms, as described by some eminent authorities, as a distinct disease-entity or not. That is what is claimed for it. Can we not come to a decision as to whether that claim is justified or not? At the risk of being regarded as belonging to the unprogressives, I venture to maintain that

the theory of dementia præcox is still not proven. And without going at all into details, let me ask whether the principle which underlies this doctrine is a sound one. I mean the principle of segregating into a separate class, as the subjects of a distinct variety of insanity, insane patients who may happen to exhibit two, three, or more symptoms of a similar character, while in other respects wide differences in their respective mental states may co-exist, and I hardly think it can be denied that this applies to most of Kraepelin's illustrative cases. Attention has been drawn to this by different authorities, of whom I need only mention Dr. Clouston, who in his remarks in connection with the debate on this subject at the annual meeting in 1908 made this comment: "The symptoms often seemed so contradictory. Supposing there was a disease with a symptom common to other diseases, they were not all thrown into one group because they had one common symptom. Kraepelin, if he erred at all, erred in that respect. There was a common symptom, but the others were so diverse that he objected to their being thrown together and called dementia præcox, *because the differences exceeded the likenesses.*" Just so. Amongst the heterogeneous population of any large asylum no doubt different batches of patients could be sorted out who might present a somewhat similar combination of symptoms. But which particular symptoms to single out as of primary importance, which to reject as secondary and subordinate, would be a matter altogether dependent on the particular leanings and mental bias of the observer. And if a number of psychiatrists were separately to parcel out the patients in any asylum into symptomatological groups, including dementia præcox, it is highly probable that we should find very different results in the case of each observer. As I have already pointed out, the differences in the estimated percentage of dementia præcox in various asylums are perfectly astounding. It cannot be otherwise, for the amount is absolutely dependent upon the personal equation of the medical staff.

The same is true, though perhaps in a minor degree, with regard to what is now called "manic-depressive" insanity. This is no new discovery; it is merely a new term for those cases of insanity of a mixed form which are well known to anyone who has had any asylum experience. Sir John

Batty Tuke, in his lectures delivered in 1894 on "The Insanity of Over-exertion of the Brain," says: "By certain expressions I have indicated a belief that what are apparently widely divergent morbid mental symptoms—mania and melancholia—are dependent on common pathological conditions." And again: "A large class exists in which it is impossible to say whether they are melancholic maniacs, or maniacal melancholiacs." Tuke did not propose to assign a separate niche in our classification to such cases, nor to designate them by any specific term as Kraepelin has done, and, while not admitting that such cases follow any definite course, or present any special traits sufficient to warrant our regarding them as a distinct variety, many, no doubt, feel grateful to Kraepelin for directing attention to the existence of such cases, which form a large proportion, if not an actual majority, of the chronic cases of acquired insanity in our asylums, a fact which, however, seems to have been practically ignored until within comparatively recent times.

(2) Let me now deal briefly with the second part of my subject, the personal equation as regards the observed. We know for certain that the brains of different individuals react in a totally different manner to the same disturbing agent. In ordinary disease, non-mental, the psychological condition of each individual differs from that of another suffering from the same malady. In such cases the diverse results cannot be due to the disturbing agent, which is admittedly the same, but must depend on inherent essential differences in the mental constitution of each person, and that in turn on the structural arrangements, molar and molecular, of his cortical brain-tissue as inherited and modified, as regards function at least, by environment and habit, coupled with the physico-chemical processes of metabolism, which we may be sure differ more or less widely as regards each individual brain.

In support of this we have what may be called experimental evidence in the action of drugs. Why does alcohol affect different persons in different ways? One man under its influence becomes dull, heavy, sleepy, and stupid; another hilarious, brimming over with humour, effusive, and gushing; a third irascible and combative with propensities to violence. Surely this depends on the constitution of the individual brain, the character and temperament of the man. In 1894, when our annual meeting was last

held in Dublin, in a paper contributed on that occasion I mentioned, in quite a different connection, the experience of a Dublin surgeon many years ago, which it may be of advantage to repeat here where it has an altogether different bearing. The late Dr. Lyons of Dublin, who was pathologist-in-chief to the British forces in the Crimea, a man of acute powers of observation, after a very wide experience reported on the very diverse effects of chloroform on soldiers of different races and nationalities. In the case of the docile Turk and the Russian the chloroform was immediate in its effects; with hardly an exception they fell in the space of a few minutes into a state of profound anæsthesia, which lasted till all the stages of the most formidable capital operations were fully completed. The phlegmatic, blue-eyed, fair-haired Englishman of the Saxon type came next. He was not quite so susceptible to chloroform, and did not go so quietly under as the Turk or the Russian, but still he generally went under without struggles, and the anæsthetic sleep was induced after a moderate interval and was usually complete to the end of the operation. In the case of the Sardinian and Northern Italian there was more excitement. But in none was the excitement so intense and prolonged as in the French and Irish specimens of the great Celtic brotherhood. In the French Zouave, for instance, the vapour was often resisted, and there was a stage of struggles with wild excitement, rambling, incoherent and boisterous talk, with shouts, laughter, and curses, and it was only after a protracted interval that anæsthesia was finally produced, and it was hardly ever so profound or prolonged as in the Turk, Russian, or Englishman. But in the Hibernian Celt the phenomena of chloroformic excitement culminated in its wildest exhibition. Inhalation was stoutly resisted, there were furious struggles, anger, curses, and a voluble outpouring of the native Irish. The interval before complete anæsthesia took place was often very great, and became the source of infinite trouble, and, moreover, entailed irremediable suffering and loss of life.

Now, here we have as it were an experiment on a large scale, and a very remarkable and very significant series of facts. We see the same toxic agent producing in a number of persons similarly circumstanced widely different effects as regards their mental condition. The cause was the same, the surroundings were the same, but the individual brains were not

the same, they were essentially different, else what other explanation can be given of the diverse results? And may we not reasonably conclude that the same is the case as regards other toxic agencies which affect mental function, such as the poison of fevers, bacterial toxins, and such like? Why is it that during the course of the different continued fevers some patients are the subjects of delirium of the wild excited class, others of the low muttering type associated with what we call typhoid states, while others, again, even with high temperatures, have no delirium at all? Does not the occurrence of delirium or its absence, depend mainly, not on the particular morbid poison, but on the powers of resistance to toxic influence of the higher cerebral centres in each individual case?

Take, again, the effects of traumatism. I have seen cases of insanity consequent on injuries of the head where there were the widest differences in the form the insanity took. In one case which I brought before the Irish division in a paper afterwards published in the Journal, the mental derangement following a blow on the vertex from a hockey stick, took the form of the most vivid and remarkable hallucinations of such a consecutive and coherent character that they closely resembled fairy tales, or some of the narratives of Jules Verne. In another case which came recently under my notice, where the derangement followed a fall on the head from a cart, the chief symptoms were incoherence of speech, mistakes of identity, with great impairment of memory. In a third, also seen recently, where there is a deep sulcus along the junction of the frontal and parietal bones, the result of injury, the chief symptoms were rambling speech, refusal to take food, violence, and insomnia.

Here again the same cause, a blow on the head, caused quite different effects, *quoad* mental derangement, and are we not, therefore, justified in concluding that the cause of the illness had little or no effect in determining the *special* character of the mental symptoms in each particular case, but that this depended mainly, if not altogether, on the cerebral constitution of the patient?

"Puerperal" mania or melancholia has long figured as a distinct "variety" of insanity in our tables of classification. Does insanity, occurring during the puerperal period, differ essentially from insanity which occurs in other circumstances? Does, in other words, the underlying pathological

condition cause any specific characters in the mental disturbance which differentiate it from other forms of insanity, so that it could be readily recognised if it were not known that the patient had recently given birth to a child? Why limit the forms to mania and melancholia? Many years ago Dr. Sankey wrote: "It is quite unwarrantable from a pathological point of view to exalt these cases into species of disease; they go through the same course of symptoms as others; in the wards of Hanwell I could always point out cases of melancholy, mania, paresis, imbecility, or recurrent insanity, cases with stupor, with chronic symptoms, delusions, etc., which occurred during the puerperal condition."² These words are probably just as true now as when they were written, and the facts here narrated are only another indication that the same pathological cause is capable of producing very different results as regards the psychic phenomena exhibited by the patient.

The same reasoning is applicable in the case of other described varieties, such as phthisical, rheumatic, syphilitic, etc., insanities. It cannot be maintained that there is anything special to distinguish these various forms or phases of insanity from other similar forms occurring independently of any of the conditions implied by the defining terms.³

It has often been deplored that in consequence of our knowledge of the morbid processes underlying insanity being so imperfect, we are unable to classify it, as is done in the case of most "bodily" diseases, on a pathological basis. While not in any way wishing to depreciate the value of pathological research, I verily believe that if we had perfect knowledge of these morbid conditions it would give us but little help in framing a scientific clinical classification which would materially aid in diagnosis. From the facts to which I have called attention in this paper, and from many others which time will not permit of mentioning, is the conclusion not justified that the same, or similar, morbid process is capable of producing quite a different set of symptoms, different both in character and in sequence of occurrence in different individuals, according to the particular cerebral and mental constitution of each? Is it not this which lies at the bottom of the differences in the psychological phenomena in the case of sane minds, minds in a perfectly healthy condition; and surely it is a logical position to assume that precisely similar

differences will occur in the functioning of the brains of insane persons, which will reveal themselves in the varying symptoms which give its special character to every so-called "variety" of insanity, and that, in a word, the chief determining factor of the type or variety of insanity of which any person is the subject is not a pathological process, but the personal equation of the patient?

Some little time ago, in a short paper, I ventured to put in a plea for a fuller recognition of the unity of insanity, for the view that it is but one malady throughout, but manifesting itself in many forms and phases, most of which are irregular in course, hardly any of which exhibit a determined and pre-ordained sequence of phenomena which would justify their being regarded as distinct varieties or disease entities, such as we are familiar with in regard to a large number of so-called bodily diseases. The multiplication of these varieties is to my mind a distinct evil.

In a work published two years ago by an able writer the forms of manic-depressive insanity are enumerated as recurrent mania, periodic mania, intermittent mania, recurrent melancholia, insanity of double form, alternating insanity, etc. But in addition, other forms of "mixed states" of the same variety are given, as maniacal stupor, agitated depression, unproductive mania, depressive mania, depression with flight of ideas, akinetic mania, with the rather naïve remark as a wind-up, "Still the possibilities are not exhausted."⁴

Over twenty-five years ago M. Guislain used these words: "Vingt trois formes de manie, sans compter plusieurs formes composées non indiquées, voilà, me direz vous peut-être, un bagage symptomatologique passablement lourd pour la mémoire." It is this symptomatological—and I may add terminological—"baggage" that weighs down psychiatric science so much at the present day, which is to my mind not a help but a hindrance, and could we but make up our minds to divest ourselves of a large part of its unwieldy burden, so much the better I believe would it be for the future progress of psychiatry.

(¹) Dr. Marshall, in a paper on "Periodic Attacks of Excitement and Depression in the Chronic Insane" (*Journ. Ment. Sci.*, January, 1911, p. 79), says: "Alternating mental states may appear as episodes in the most diverse forms of alienation, imbecility, secondary dementia, organic dementia, paranoia." Whether such cases shall be classed under the heading of manic-depressive insanity, or as belonging to one of the other forms in which that condition occurs as an episode, will, of course, altogether depend on the personal bias of the classifier.—(²) Sankey's

Lectures on Mental Disease, 1884, p. 196.—⁽³⁾ Amongst numerous *dicta* bearing on this subject may be quoted a statement of Dr. Hughlings Jackson (*Fourn. Ment. Sci.*, July, 1875): "There is nothing in any kind of nervous symptom which enables us to diagnose syphilitic disease of the nervous system; the pathological processes by which syphilis causes nervous symptoms simply imitate non-syphilitic morbid processes." And Dr. Byrom Bramwell in his address in medicine at the annual meeting of the British Medical Association in July last said: "The differential diagnosis of tumour of the frontal lobe and general paralysis of the insane is sometimes attended with great difficulty." In other words, the clinical evidences of disease, and I would say particularly in disease of the nervous system, give frequently little or no clue to the underlying pathological condition, and not seldom give rise to quite an erroneous diagnosis.—⁽⁴⁾ "*Outlines of Psychiatry*," by Prof. William A. White, Washington.

DISCUSSION,

At the Annual Meeting held in Dublin July 14th, 1911.

The PRESIDENT (Dr. DAWSON) remarked that it was evident the meeting had listened with the greatest interest to the extremely thoughtful and well-reasoned paper by Dr. Drapes. There were many interesting points of view from which the paper could be discussed, and he hoped it would be.

Dr. JOHN MACPHERSON said he was sure all present felt very much indebted to Dr. Drapes for the trouble he had taken and the amount of thought he had given to his paper. For himself, he would say that the paper contained so much important matter that, until it appeared in print, it would be impossible to discuss it adequately or fully. He could not help thinking, while Dr. Drapes was speaking, that he was reviving a controversy half a century old. He, the speaker, thought materialism had died a natural death half a century ago. In fact, the last great protagonist of materialism among the membership of that Association and in England was Dr. Maudsley. Dr. Drapes had now very ably seconded and put forward Dr. Maudsley's position and the position of the other great materialists of the middle of the nineteenth century. He, Dr. Macpherson, did not see that they who were engaged in the specialty as physicians were concerned with any theory of mind whatever in connection with the treatment of their patients. It seemed to him it would be the same as if neurologists, when they were studying the effects of paralysis of a nerve and recording the symptoms, were to be distracted altogether from the clinical study of neurology, and were to attempt a classification of nervous diseases based on some theory of the production of nervous energy. His own view was that materialism was a side issue. It was a very important issue for the meta-physician and for the theologian, and a very important and interesting study for people interested in philosophical literature, although he felt great difficulty in understanding the position of the materialist at this time of day. He did not know how Dr. Drapes would explain it or how he would account for the position, that if one accepted materialism as an explanation of mental phenomena, then one was bound to believe that our moral perceptions, our power of distinguishing between good and evil had been evolved out of Nature as a by-product. That seemed to him to be an utter impossibility; it seemed to place the position of materialists altogether out of court. But that was a matter of private opinion. Very great men had held that opinion, but, at the same time, he regarded it as inconsistent with our modern thought and ideas. Then Dr. Drapes attacked the position of Janet and the people who believed in psycho-physical parallelism. The moment one initiated psycho-physical parallelism as a working theory one freed oneself of one side of the problem and was able to work along the physical line without reference to the psychical aspect at all. That was what ought to be aimed at. Mind was not understood—at least he did not understand it; it might be, as Dr. Drapes thought, that it was a form of electricity too subtle for us to comprehend, but that was a mere theory—we did not know. For the present, all that could be said was that we were agnostics in that particular, and so long as we were content to be agnostics and to work along the ordinary medico-physical lines, then progress would be made. With regard to classification, he did not think that this, after all, was a very important matter. He believed that

too much was made of classification. All that was really required from classification was that it should enable one to group certain types of cases together to facilitate study, and hence to facilitate treatment. He confessed that alienist physicians had been led far astray by the ghosts of classification which they had been compelled to adopt from time to time and then cast away. For himself, he thought that if Kraepelin showed there were among the younger patients who entered asylums two groups, one consisting of those who suffered from that form which he called "manic-depressive insanity" and which would recover, and another group, who suffered from an irrecoverable form, he was justified in calling one manic-depressive insanity and the other dementia præcox, although no one deplored the latter term more than Kraepelin himself.

The PRESIDENT said that the difficulty in discussing such a paper was that it was too good. There was so much in it, and it was so carefully thought out, and so logically reasoned, that it was necessary to see it in print before it could be properly discussed. He had for years been of Dr. Macpherson's view that, as physicians, they were not in any way concerned with psychological theory. But that did not lead him, as it had led Dr. Macpherson, to adopt the theory of parallelism, because if they were to treat insanity they must assume that they were able to influence psychic processes by material means. As a matter of fact psychic processes could be influenced by material means, and, therefore, for them the subtleties of abstract psychology were insignificant, in so far as they were practical medical men, though no doubt such speculations were very interesting as recreation of a more or less strenuous kind. He also agreed with Dr. Macpherson that classification was not such an important thing, for practical purposes, as it was generally considered. When he first joined the specialty he used to be very keen on ticketing every case with its proper label, but as one got older one thought more and more of the case individually, and of treating the symptom-complex which it presented, and less and less of putting it into its proper pigeon-hole. With regard to dementia præcox, he supposed he was old-fashioned in his ideas, but he was not yet convinced, though he admitted that the name was a convenient one by which to denominate a certain group of cases which presented a few symptoms in common and many symptoms which differed. He was not even inclined to agree with Dr. Macpherson that one could say absolutely that whereas the depressive cases were recoverable, those of dementia præcox were irrecoverable, because cases which presented exquisitely the picture of dementia præcox, almost text-book pictures, made excellent recoveries and remained well. It was therefore necessary to know more before one could say dementia præcox was a morbid entity; but in that relation he joined issue with Dr. Drapes, because he thought that the only secure basis for establishing the classification of insanity in which he was so interested was pathology. Until they could show a distinct pathology it was useless to talk about establishing a classification, just as useless as it would be to try to establish a morbid entity on the physical side unless one found there was an essentially constant pathological basis underlying it.

Dr. DRAPES, in reply, said he felt very grateful for having been dealt with so tenderly, especially by Dr. Macpherson. He need not say what a profound respect he had for Dr. Macpherson's views, and for the President's. He was surprised he had not been more harshly dealt with. But he took exception to the view which Dr. Macpherson expressed regarding what he, Dr. Drapes, said, that his views were materialistic. His, the speaker's, argument was that materialism under the more recent light of physical research had almost ceased to exist, because the material and immaterial were proved to be identical. And, mind being immaterial in essence, there was no greater difficulty in conceiving of it as being a produce of material changes or motion than there was in believing that such forces as gravitation, heat, and electricity were also merely modes of motion, in which matter and motion were so closely bound that physicists could not say which was one and which was the other, or which was first. He was not aware that he was a materialist. It was difficult to make up one's mind as to where to draw the line, and he had felt a difficulty in drawing the line between purely neural symptoms and mental symptoms. They merged into each other so gradually that he did not think even the most competent and able immaterialist would be able to say where one ceased and the other commenced. Therefore the onus of proof rested upon them to show that mind was not the product of an action in the higher centres

of the nervous system, which, it seemed to him, all facts and arguments were leading up to. He quite expected to be in a minority of one in that meeting, though he believed that Dr. Bristowe held much the same view, as did also Dr. Morton Prince on the other side of the water, as well as Dr. Claye Shaw in this country. In fact he had himself learned much from those gentlemen. He, Dr. Drapes, did not claim any originality in the matter which he had put in his paper. But he was satisfied to have heard the interesting remarks of the President and Dr. Macpherson. With regard to the action of matter on mind, it is found that the more the molecules increased in complexity, *i.e.*, the larger the number of atoms in them, the more unstable did they become. And it was believed that all nervous action was due to explosive energy on the part of cells; and therefore it was only going a step higher to regard that explosive action in the highest cortical centres as one and the same with the mental phenomena. He thought they both occurred simultaneously, and that there could not be one without the other. The President said that until they were able to arrive at a distinct and definite knowledge of the pathology of the brain there could be no satisfactory classification. That was the point of his contention. He had given sufficient evidence to show that the same apparent pathological conditions produced widely different effects in different persons, and that the same cause could produce sufficient differences to constitute varieties of mental derangement in different persons. He believed it was at the Cardiff meeting last year that Dr. Percy Smith narrated a case in which all the symptoms were those associated with general paralysis, which was recognised as a very distinct morbid entity, with a distinct pathology; there was no history of syphilis, and the condition was found to be due to the effect of an injury to the head. If such distinct symptoms as those of general paralysis, which were said to be produced by syphilis, could be the result of injury, he did not see why other conditions should not be due to a variety of causes, and why different varieties of insanity, so called, should not depend on much the same cause. He maintained that the cerebral constitution of the patient was the most important factor.

Psychotherapy in Mental Disorders. By WILLIAM GRAHAM, M.D., Medical Superintendent of the District Asylum, Belfast.

IN discussing this theme before a scientific assembly it is needless for me to say that I make no claim to be the bearer of a new revelation, or the creator of a revolutionary therapeutic. My function is much more modest; it is to raise some questions that may lead to profitable argument, questions which have excited great attention in psychological circles in France, Germany and America, and yet which have scarcely stirred a ripple of interest amongst ourselves. Men of international reputation assure us that they have applied with singular success these psychical methods in the treatment of certain forms of mental disturbance, and our excellent English textbooks in psychiatry either ignore the whole subject or put the reader off with a few superficial remarks that afford no practical insight into the matter. Such men as Freud, Jung and Prince

may publish their refined and delicate analyses and we continue to repeat our well-worn formulas, never dreaming for a moment that these men may have something to teach us. Their theories may be right or wrong, but their therapeutic successes are not open to question. Surely here, in Ireland, amid a population peculiarly amenable to psychic influence, it is for us of especial moment to learn how such influence may be exercised and by what methods it can be brought to bear upon disordered personalities. My purpose, then, is to make clear what these methods are, to indicate their strength and their weakness, and to show their bearing on mental hygiene.

1. The classical methods of psychotherapy are as follows: (a) Suggestion: waking and hypnotic; (b) therapeutic conversation; (c) psycho-analysis; (d) occupation; (e) re-education.

(a) *Suggestion*—Waking, hypnoidal, and hypnotic.—In the popular mind and even in medical circles it is usual to identify psychotherapy with suggestion, and then to dismiss the whole affair as exceedingly dubious. This may be pardonable among the laity; it is wholly unpardonable among professed students of science. For in the first place suggestion is only *one* psychotherapeutic procedure, and in the second place abundant proofs have been given of its value in the writings of such authorities as Moll, Bernheim, Forel, Liebeault, and Boris Sidis. In this matter only those who have actually experimented and observed are entitled to a hearing. Schrenck-Notzing has placed beyond all doubt that sexual perversions are curable by hypnotic suggestion, and it may be questioned whether any other method will yield satisfactory results. Prince has shown its power to re-integrate a dissociated personality; and it is well known that many alcoholics find that through hypnosis their craving disappears and new associations are built up. As one who was delivered from the alcoholic obsession said to me: "I feel as if something had died within me and something had been born." Such intractable troubles as stammering and deep-rooted phobias have been known to disappear under hypnotic suggestion. Indeed, so remarkable have been the results that many investigators have talked as though it was a panacea for all the psychic ills of humanity. It is, therefore, only right that its limitations should be noted. Owing to popular ignorance many are afraid to submit to it, and refuse to be hypnotised. Others, though willing, cannot be put into the hypnotic state

owing to some constitutional idiosyncrasy. Then, again, the patients' problem may be too complicated to be solved by this easy method. It has been found that alcoholic cases will relapse sometimes unless hypnosis is followed up by an educational *régime*, which will build up anew the ethical forces of character. In brief, hypnotic suggestion will be found of great value as a preliminary treatment, whereby old thought-associations may be broken up and new ones formed, but it has failed again and again because the physician expected too much from it, and had been blind to the complexity of the problem he had been trying to solve. Finally, it has failed in cases in which it ought not to have been applied, but in which some other psycho-therapeutic measure would have proved beneficial.

(b) *Therapeutic conversation*.—This may be called Dubois' method, though, of course, many had used it before the great Swiss specialist. He deserves the credit, however, of having elaborated it, and of having shown what it can do, in his book *The Psychic Treatment of Nervous Disorders*. It consists in explaining to the patient the origin and significance of his disorder, and in so explaining these things that the explanation becomes persuasion. It is the unknown that enslaves and disorganises the psychic functions. Make clear to the sufferer the origin and meaning of his experience and at once he feels relief and is set on the road to recovery. One envies the ease with which, apparently, Dubois can "erase the written troubles of the brain." "I cured him," he says, "in three or four conversations." This method is applicable in the mild melancholic depressions, and, speaking generally, in the less intractable types of disorder before the perverted ideas have become too deeply fixed. Much can be done with the paranoic if he come under observation at the earliest stages of his malady. So, too, with certain delusional states. For example, a patient suffering from chronic delusional insanity of over three years' duration frequently complained to me that he bore on his forehead the mystic number "666," the "mark of the beast" referred to in the Book of Revelation. I explained to him carefully that the "beast" was Nero, and that the number was the mystic symbol of his name, that therefore passages and events of the first century could have no connection with an honest man living in the North of Ireland in the twentieth

century. The patient, after frequent reassuring conversations, accepted my explanation, and is now perfectly well and engaged in his ordinary pursuits. Nevertheless, the limitations of the method are obvious. Many patients are in such a state that their attention cannot be gained long enough for an impression to be made. Moreover, even when for the time the therapist has conquered the morbid obsession, there is danger of a relapse as soon as his influence is withdrawn. Further, it is manifestly inapplicable in all the more serious or more complicated psychasthenias and hysterias.

(c) *Psycho-analysis*.—This method, which in its more elaborate and technical form we owe to the genius of Professor Freud, of Vienna, has given results in cases not amenable to any other procedure. Indeed, in the hands of skilful technicians it has effected such brilliant cures that in some quarters it has been magnified as the one and only therapeutic agency in the psycho-neuroses. It is not necessary, however, to accept this extreme position to acknowledge that whatever we may think of the theories connected with the name of its originator, we have undoubtedly in psycho-analysis a valuable instrument for probing the underlying causes and for getting at the secret sources of a morbid symptomatology. Any procedure by which we dissect, as it were, the disordered complex, such as, for example, simple cross-examination eliciting a full confession of the acts or experiences leading up to the trouble, may be called psycho-analytic. But the term in its more technical usage is applied to a special *modus operandi* which assumes that many disorders arise from the inability of the normal consciousness to assimilate experiences of a painful emotional character, and from the conflict thus set up between the personality as a whole and the special groups of thoughts it would reject or suppress. The suppression of disagreeable complexes is the fount and origin of the mischief. Find out what is being suppressed and synthesize it with the normal self and the disordered psychic function is restored to its proper exercise. The way by which this discovery is made is called psycho-analysis. The process seems at first sight easy to manipulate; as a matter of fact in really serious or complicated disorders it taxes the therapist's utmost ingenuity. For in these instances very often the patient himself does not know what are the causes of his trouble; they are concealed from him and

lie buried in the realm of the sub-conscious or the co-conscious. No cross-examination can summon the pathological forces from the depths where they secretly work. Not only so, but not infrequently these sinister forces assume distorted shapes, and will easily mislead the observer who is not familiar with their sinuous transformations. Indeed, Freud and some of his followers maintain that at the root of all hysteria there is a concealed sexual factor which may masquerade under the most diverse disguises. This view, however, has not won general acceptance with the great body of students.

There are cases of hysteria brought on by an emotional trauma which have no discoverable or imaginable connection with sexual phenomena. But Freud is undoubtedly right in calling attention to the influence of this element, even in cases where at first sight no trace of its presence can be found. As an illustration of the foregoing exposition, I may mention the case of a young woman suffering from long-standing insomnia, who had been subjected to a *régime* of hypnotic drugs without any benefit. An examination revealed some hysterical stigmata, and a course of suggestive treatment was applied for two months, with, however, only small and evanescent results. An accidental hint indicated that during the slight sleep she did enjoy she was the subject of rather peculiar dreams. These dreams were subjected to a careful analysis, and they were found to be the symbols of mental conflicts arising from the suppression of a sexual desire which the patient had experienced some years before. In these processes it is not too much to say that the innermost soul of the young woman was laid bare, and this laying bare of the inner life, or to change the figure, this bringing into the clear light of consciousness of the submerged psychic factors, re-established mental unity and integrity. And thereupon ensued sound normal sleep. Or to take an illustration where no sexual element entered into the case, a woman suffered for several months from the habit of waking up suddenly every night after a few hours' sleep with all the symptoms of a bad fright, profuse perspiration, palpitating heart, and agitation. She worried greatly over the matter, and the worry led to abnormal fear of insanity. The usual methods were tried, but to no purpose. Under psycho-analysis it was learned that some months before the patient had returned home fagged out after a rather wearisome railway journey, and that she had

tried to put herself to sleep by reading a popular sensational novel. A particular scene in this novel had laid hold of her mind so strongly that for a time it could not be shaken off. Dissociated from her normal mental life, the dramatic incident became submerged or subconscious, and set up the abnormal functioning that led to her miserable nightly experience. She herself had forgotten this event, and it was recovered only after she had been put in a hypnoidal state. Her cure was effected by synthesizing the experience with her existing consciousness.

We must distinguish clearly between Freud's psychological doctrine (such as the sexual character of the suppressed complexes, and their causal relation to the various types of psychical disorder) and the therapeutic method of psycho-analysis. The progress of criticism will probably shake some of Freud's theories; but his therapeutic method has won success where other remedial agencies have signally failed. And the next question is: Are these results explicable on other grounds than those put forward by Freud?

Speaking generally, psycho-analysis is applicable in obsessions, phobias, hysteria and many paranoidal states as distinguished from typical paranoia, and if we are to believe Jung, in the early stages of dementia præcox.

(d) *Occupation*.—By this is meant any method whatever by which the mind is distracted, that is, is weaned from self-analysis and an unhealthy activity. The older doctrine of rest and isolation in psycho-neurotic cases contained an element of truth. Rest is a necessity in such states of exhaustion as accompany melancholia or manic-depressive insanity. But as we have learned to distinguish between different kinds of fatigue, we know that there is such a thing as psychical fatigue as well as physiological fatigue. The fatigue of neurasthenia or psychasthenia will, as a rule, only be deepened by continued rest. The patient adds to his other bad habits the rest habit, and so is prevented from adjusting himself to his environment. Hence therapeutic work—work which carries with it a feeling of interest and a sense of achievement for the worker—cannot be over-estimated. It regulates the psychic functions, trains the attention, gives rise to new and healthy complexes of thought, and tends to destroy that mental egotism which too often complicates the psychic disturbance. The learning of a foreign language such as German, or the making of a book index or a

piece of translation work has been found to have a distinctly curative value, because thereby a new interest has been created which has crushed out the old self-centred, hopeless mill-round of introspective thought. There is but one way by which the painful sense of unreality so characteristic of psychasthenia can be removed. The patient must be brought close to reality, must live in it, must steep himself in it that thereby the phantasms of an undisciplined imagination may be put to flight. Only the real makes real.

(e) *Re-education*.—This may be properly regarded as the crown and completion of the therapeutic process. Doubtless it is to some extent implied in the other measures already discussed. If the suggestionist is not a mere charlatan he will know how to educate his patient by introducing into the stream of mental life new and healthy complexes which henceforth affect the whole personality. So, too, with the other technical procedures. Nevertheless the term is rigidly reserved for a special method by which an effort is made by searching the mind of the patient to find out the cause of his disorder, and thus a careful statement repeated in varying phrase is offered, setting forth the right way to regain mental health and to effect a readjustment to life. The first prerequisite, of course, is a thorough understanding of the individual, his past life, his aims and desires, in a word, the contents of his inner world. In gaining this knowledge we also learn his false conceptions of his own state, which themselves help to perpetuate the unsound mentality. One more step is to remove these by substituting for them correct ideas and by fixing them firmly in the mind. Finally, we must take up his special problems, his work, his domestic life, his pains and aches, his obsessive ideas, his special habits, in short, everything which enters into the circle of his mental interests, and we must show him the lines along which a true solution is to be sought. Is the patient, for example, a psychasthenic held in the grasp of a rooted phobia? We must, in the re-education process, show him how the dread arose, how it has been conserved, and how, by tentative and gradual strife, it is to be overcome. Or is he the subject of a paranoidal state? His delusions must be traced back to their source, and by persuasion skilfully administered; the morbid complex must be driven under the current of mental life, thereby enabling the patient to re-adjust

himself to his social environment. Speaking generally, it may be said that the great aim of the re-educative method is to train the patient to throw into the margin of consciousness those complexes of ideas with which are associated debilitated or depressive feelings and to keep in the centre of consciousness those ideas that give rise to feelings which invigorate and fill with a sense of capacity and energy. In some cases isolation is necessary in order that the method may be successfully applied; in others the sense of social fellowship might be a help rather than a hindrance. In this case it is the reason that needs our attention, in that case it is the will, in that again it is the emotions. The strength of re-education lies in its prophylactic power, for by it the man is really changed, old associations have vanished, new complexes have taken their place. He is like a wanderer rescued from the bogs and morasses, in which he was sinking deeper and deeper, and set upon the firm and familiar high road. Therefore, any procedure that stops short of re-education in some form is slovenly and unscientific.

Only a few words on the relation of psychotherapy to mental hygiene need be added. The great achievement of modern investigation is the recognition that many mental troubles have a mental origin, and can be treated effectively only by psychic means. This position we can hold quite independently of our view on the relation of mind to body, matter, and spirit. Let us not confound metaphysical with practical considerations. Whether we are monists or dualists or parallelists, the essential principles of psychotherapy stand firm. Our philosophical creed is a matter of speculation, our therapeutic is based on observation and experiment. Now, using the term "psychotherapy" in no narrow etymological sense, but in a broad practical way, we cannot exaggerate its value in the primary stages of all mental development in the formation of character, in education, and in the beginning of many pathological mental states.

DISCUSSION,

At the Annual Meeting held in Dublin July 14th, 1911.

The PRESIDENT said he was sure he was voicing the feeling of all when he expressed his personal obligation to Dr. Graham for his extremely interesting paper. The contribution covered an enormous ground, and it would be very interesting to the meeting to hear any comments.

Dr. MARY MACKENZIE asked if Dr. Graham would explain what his system of

psycho-analysis was. Freud, she believed, did not hypnotise, and she did not gather from the paper whether Dr. Graham meant that he hypnotised or not.

Dr. HUBERT BOND said listening to the paper had interested him very much, and peculiarly so because much of the work which they, at Long Grove, were trying to do, was along those lines. His colleague, Dr. Mapother, was present, and he was sure he would join with him in expressing regret that their colleague, Dr. Hart, who had so identified himself with this line of study, was not present to have joined in the discussion. There was no doubt whatever as to the marked results which could be obtained by some of the methods to which allusion had been made, and if the final issue was not always what one would hope for, *i.e.*, if real cure was not always effected, and if sometimes only temporary improvement was brought about, there still remained the fact that the employment of those methods brought one into touch with the patients in a way which no other methods did. It was worth while to pursue them if only for that reason. He would like to utter a note of qualification, namely, that if they were going to prosecute the treatment in those directions seriously and generally in various asylums, it would be necessary to persuade the powers that be to afford the necessary number of medical officers, because the present average number of medical officers would be altogether inadequate in proportion to the number of patients. In the places which Dr. Graham cited the asylums were small, and there might be as many as twelve or twenty physicians attached to one institution, a condition of things which did not obtain anywhere in England.

Dr. J. O'C. DONELAN wished, as one who took an interest in the system of treatment some sixteen years ago, to offer a few words of comment. There was then a great deal of talk in medical circles about hypnotism and treatment by hypnotic suggestion in the case of the insane. In fact the treatment of almost all mental and physical ailments by hypnotic suggestion was advocated. He followed at the time most of the people who were keenly interested in the subject, and he specially took some patients under his care to treat. One case he remembered well was one of marked *folie de doute*, that of a patient who came in in a state of misery. He would not weary the meeting with the details. The main cause of being sent to the asylum was that she got the idea, among many others, that she would destroy her children. He took her in hand in order to carry out what he regarded as treatment by hypnotic suggestion. The history stated that she had not slept for a long time, that she had been in a condition of much agitation, and that whenever she started to sleep, or was likely to, she got into a state of excitement for fear she would sleep, as she was under the impression she might never wake again. She was the victim of serious suggestions which kept her in a miserable condition. He sent her to bed, and after some persuasion he managed to get her to rest quietly. He then tried the disc method of getting her to sleep, and he suggested to her continually that the ideas she had were false ideas, and that she should rest quietly and sleep. The first time she slept for twenty-four hours on end, so that he became anxious about her. On awaking she seemed calm and collected, and spoke a little. Shortly afterwards she again went off to sleep, and this time slept for fourteen hours. He began to fear that her last state was somewhat worse than the first. But at the end of her second sleep she awoke and remained quiet and apparently normal, and from that day she remained free from any return of her sensations of misery and fear. At that time he formed the opinion that he had discovered an universal cure for insanity, and accordingly he worked practically day and night for some days at every case which came in. The result was that he became so exhausted he had to abandon the treatment. Besides the case he had mentioned three or four other cases were markedly improved. One of the last two cases tired him out, and he had to abandon them both in the middle of the treatment after trying for two or three days without making progress. He believed the cause of that lack of success was that he had not himself the physical strength to continue the treatment. He believed there was a great field for hypnotic suggestion, but he thought with Dr. Bond that the great difficulty in carrying it out was the immense staff which would be necessary, as it would require a medical officer to every ten or fifteen admissions to make any appreciable effect on the patients. The question of the increase of staff, which, of course, meant spending money, would not be enthusiastically received unless many cases were seen to recover.

Dr. MAPOTHER, speaking in reference to the amount of time required for the treatment of such cases, said he knew that Dr. Hart had devoted an hour every day during the past six months to the treatment of one patient. That patient was now well on the way to recovery, though the cure was not yet complete. In another case which he had seen, he did not think any permanent improvement could yet be said to have taken place. It was undoubtedly a case with a sexual basis, and the underlying state did not seem to have been dealt with. But temporary improvement, such as that seen in the obtaining of sleep, was always procurable. He had seen another case which was rather one of psychasthenia than hysteria. In this very little permanent improvement had been obtained, but the man, when in a state of extreme anxiety and agitation, could be rendered quiet for variable periods, sometimes extending to several days.

Dr. HELEN BOYLE asked whether the suggestions employed in the treatment by Dr. Graham were invariably direct ones, or could indirect ones be employed with success. In the case of a large number of patients, if one suggested indirect matters, the suggestion aroused an auto-suggestion of the contrary nature, so that the patient had the desire to do something contrary to what one wanted. In some cases one could suggest something systematically every day in whatever line one wished, and successfully; but in others if one pursued a special line it aroused opposition, and the patient would do his or her best to prevent its being carried out. There were two methods of suggestion: One was that in which one insinuated that the patient was incapable, and hence there was aroused a spirit of determination; and the other was to make a direct suggestion.

Dr. T. W. McDOWALL said he supposed that Dr. Robertson, of Morningside Asylum, Edinburgh, was one of the few senior men who attempted that form of treatment in a serious manner; and, as Dr. Graham and most of those present probably knew, his results were practically negative. He was rather glad to know that, because the only results which he, Dr. McDowall, ever saw were distinctly evil. Dr. Percy Smith would remember a very amusing meeting held at Leeds twenty years ago or more, when a Frenchman attended, who expounded that form of treatment with great elaboration, and members were very much amused when the speaker proposed that that was the means of banishing sin and all mental evils from the face of the earth. Whether it had been successful or not he would leave members to judge for themselves.

Dr. SOUTAR said that he did not know why it should be assumed that the methods of treatment under discussion were so little known. He could not find that there was much to differentiate them from what was called by our progenitors the "moral treatment of the insane." Some may have objected that the word "moral" suggested that they were trenching on the domain of another profession. Possibly there would be less objection to the same thing when it was hidden under a Greek derivative. He did not think that there was anything in this system which had just been submitted to the meeting which had not been common practice amongst asylum physicians. The various methods had been tried. In some cases they were successful; in others they wholly failed. A person of unsound mind was often the victim of painful and morbid suggestions which could be overborne by persistent presentation to him of sound and healthy suggestion. To a large extent that was the idea which underlies the attention which was given to the general environment of the insane. The buildings which housed them and the interests which were provided for them offered them healthy suggestions. Beyond that the physician in repeated and prolonged conversations not only influenced the patient by suggestion, but by going into the history of the case, by careful analysis with the aid of the patient of the circumstances which induced the attack and of the evolution of the illness itself, it was sometimes possible to help the patient back to the lines of health by showing him when and where he departed from the normal. As to re-education, the first thing necessary was to get the patient into a condition of health which would admit of re-education. Surely it was quite common practice at a certain stage to re-educate patients, proceeding by degrees from simple to more complex mental efforts. When the stage of convalescence was reached, a further important part of treatment was to teach the patient his limitations, and to lay down for him the lines upon which he should endeavour to live in the future, just as patients suffering from heart disease or other incapacitating malady were taught how to avoid catastrophes by regarding their limita-

tions. Re-education and instruction for their future guidance were processes to which patients were very commonly subjected before they received their discharge. In his remarks he was far from decrying or attempting to decry the elevation of these methods of treatment into systems, or even of associating them with the names of particular persons. It might be that that intensified the importance of them, and so far did good. His objection was not to the new names, but to the supposition as indicated by some of the speeches heard that day that the method of treatment which the names connote was a novelty in medical practice in this country.

Dr. NOLAN said he could agree with most of what the speaker had said in the paper, for he had seen and knew his work. But the new phraseology hid the old methods which most alienists adopted. At the Limerick Asylum, where he first saw the insane treated, Dr. Courtenay spent his whole morning walking about the wards interviewing patients and ascertaining everything he could in connection with them. Next morning he went back to them, speaking to them in the manner which he found helpful in each case. Later, at Richmond Asylum, under Dr. Conolly Norman, who was devoted to his patients, he saw the same procedure, and he adopted it himself invariably. He did his best to find out all he could about the patients under his charge. In his last annual report he pointed out to his committee that an intimate personal knowledge had more to do than anything else with patients' recovery, and he thought that the results would be largely due to the amount of individual attention which could be given to each insane person. Dr. Soutar was quite right when he said that the supposed new methods embraced the old methods, but went under another name.

The PRESIDENT considered that there was much to be said for the view which was taken by the last two speakers. His own opinion was that it was a great advantage to take up a particular line of treatment and try to systematise it and utilise it for what it was worth. Hypnotic suggestion had been a long time before the public, but there was something different in it from ordinary suggestion. Suggestion was greatly increased in effect by withdrawing consciousness from external matters. His own experience of hypnotism had not been very large, and the only condition in which he had found it of much use was sleeplessness. But even in that it was extremely easy to upset the effect produced. One case in particular which he remembered was that of a man who was slightly melancholic, and who was temporarily cured by hypnotism both of his melancholia and the insomnia which acted in a vicious circle with it. But unfortunately the insomnia returned after a short time, and when he was hypnotised again after two or three days he was kept awake one night by the illness of his wife. After that the hypnosis had no effect. A small thing like that totally destroyed all the good results which had been derived from the former applications of hypnotism. The difficulty in the application of these methods was the length of time which they required, and the amount of individual attention to the patients which was necessary. He believed that Dr. Dubois never took more than six patients at a time, because he found that the treatment of that number on those lines kept him fully occupied. That fact placed the method somewhat out of the sphere of practical politics in public asylums, and unless something which required a shorter time could be brought forward, he thought that beyond the general methods of suggestion, which, as Dr. Soutar said, all practised, the system was out of the question.

Dr. GRAHAM, in replying, said he had feared that owing to the heat of the day, the closeness of the room, and the monotony of his remarks, there was some danger lest his audience should fall into a hypnoidal state. The alertness of his critics, however, dispelled this fancy, and yet he could not but infer that some speakers were thinking about one subject while his paper dealt with another. This, however, was not true of Dr. Mapother, with whose remark that time is needed in psycho-analysis he quite agreed. He thanked Dr. Bond, who, with Dr. Mapother, had had experience in these methods, for his kind references to what he had said. Dr. Soutar and Dr. Nolan were, he feared, not familiar with what had been done recently in this region. They spoke of knowing all about these principles and of having put them into practice for the past twenty years. Now, it was true that there was nothing new under the sun, but still the earth did move, and notwithstanding what Dr. Soutar and Dr. Nolan said some progress had been made, and

the most striking illustration of this progress was Professor Freud's technique for the discovery of the psycho-genesis of delusions. If the leading psychological authorities on the Continent and in America expressed their indebtedness to Freud and Jung, surely they might do so without demur. They had clung convulsively to the old method of case-taking—recording symptoms which nobody read, which he himself never read. Such phrases as "strange behaviour," "incoherent talk" did not throw much light on the individual's mental state. If the time given to those useless exercises were given to the new method of the men like Freud there would be better results. Finally, those newer psychological methods should be singularly applicable to a population gifted with the susceptibility and suggestibility of the Celtic temperament.

Note on Hereditary Insanity from a Practical Stand-point. By R. R. LEEPER, F.R.C.S.I., Medical Superintendent, St. Patrick's Hospital, Dublin.

AT this time and place it would be presumptuous of me and disrespectful to your knowledge and experience were I to claim any startling originality for this short paper.

During the past twenty-three years I have been in practice amongst the insane of this country, and I think that this experience entitles me to draw your attention to some facts which I have observed during my professional work. Although much that I have to say is well known to physicians engaged in the active treatment of insanity, I think that our knowledge is not turned to sufficient practical use in the education of the public mind and the framing of public thought to the betterment of the race, so as to prepare the way for the time when we must ultimately secure legislation on eugenical lines. Preventive legislation must be carried out if ever the mass of insanity due to marked hereditary defect is to be diminished.

Heredity, according to the statistics, plays as important a part in the production of insanity in Ireland as it does elsewhere. Alcoholism and all of the other factors sink into insignificance, in comparison with heredity, as causative agents; and let us remember that insanity produced by strongly marked hereditary influence is always the most incurable.

During past years I have had, as all of us have had, many cases which have recovered, some completely, some incompletely, and others in which recovery did not occur. The complete recoveries have all occurred in cases, as you would expect, which suffered from insanities caused by toxæmia, shocks, traumatisms, or the action of physical diseases upon

the mind, and the insanities due to unsuitable environment and employments. The incomplete recoveries and the relapsing and incurable cases were, in my experience, entirely due to defective inheritance, or were cases in which a strong taint of insanity existed, undoubtedly due to the possession by the individual of that peculiarly neurotic constitution marked by the common characteristics of degenerate types—depressed or ill-developed crania, excessively mobile or sluggish and dilated pupils, and that peculiar mauve-tinted iris which I have so often seen in the neurotic, thin-faced and excitable personalities, restless and impulsive, with more or less purposeless existences, and in whom one expects to meet with attacks of insanity during the physiological epochs of their unstable lives.

It is useless for us to hide from ourselves the fact that the resources of medicine and surgery will ever be inadequate to restore to reason and full mental health those patients who suffer from an insanity due to profound hereditary influences. The wastrel or degenerate offspring of insane parents will ever be a burthen to himself and the State—another item on the scrap-heap of degenerate and decadent humanity to be cared for and protected through the ages of Christendom.

In measures for the prevention of the production of the unfit rests, therefore, our only hope in the attempt to lessen the numbers of the chronic insane amongst us.

We must set our faces against all systems and State organisations which tend to encourage the propagation of the degenerate, and the system of all others which tends to propagate insanity in Ireland is the unimproved and perpetually active Poor Law system.

Without Poor Law reform none of the elaborate recommendations of the recently drawn up Report on the Feeble-minded by the Royal Commission can be satisfactorily carried out. Hitherto the common knowledge of the potentialities of hereditary defect as a factor in the production of insanity was either openly disregarded or these were looked upon as a visitation from Providence, which man had no business to meddle with so long as the marriage licence was forthcoming, this licence apparently being regarded as a full justification for the production of a family of epileptics, imbeciles, or gross defectives of one kind or another.

Ireland is a sexually moral country, if its morality is to be judged by the numbers of its illegitimate births. These illegitimate births occur as 3·6 *per cent.* in Ulster, Leinster 2·6 *per cent.*, Munster 2·5 *per cent.*, and Connaught has an illegitimate birth-rate of only 0·7 *per cent.* of her population.

A remarkable fact about these figures is that all these illegitimate births are recorded as having occurred in districts in which workhouses were situated. The majority of women, therefore, it is reasonable to suppose, who become the mothers of illegitimate children in Ireland are temporary inmates of the workhouses.

Again and again we hear the dismal wail of the ratepayers—What is the reason for this increase of the pauper insane population? The reason, in my opinion, is not far to seek. The ratepayer, the clergyman and the sociologist must awake to the obviously uncontrolled productive forces of insanity working for evil amongst us, if ever an appreciable diminution is to occur in the number of the chronically insane and his twin half-brethren, the chronic criminal and pauper.

Let us briefly consider the conditions of the law as regards Irish workhouses since their foundation. Lunatics were always retained there without any system of certification or classification until recent years, when some effort was made to send them to asylums. Each workhouse had and, so far as I know, has a clientele of feeble minded young women who are the mothers of one or more illegitimate children. These women were often themselves reared in the workhouse and came back there, as their mothers had done before them, as the mothers of illegitimate children, and I believe that these children are often, if not invariably, defective.

Immorality is bad, and this form of immorality, resulting in the production of a steady stream of degenerative humanity, is, indeed, specially deplorable. Again, there is the respectably married pauper, whose *home* is the workhouse, in which his wife is confined of a large family who go out of the workhouse so long as begging is profitable, and no longer. I have known of such a family consisting of five or six children come into the workhouse for a night or two for shelter and stay in the house a week, and the children are sent to the workhouse school, and then at the expiration of this short visit the parents demand their discharge. The workhouse clothes are cast off, the rags

resumed, and the wandering mother and children, arrayed in all the paraphernalia of beggarmdom, go upon another journey of pillage and vagrancy, only to seek again the sheltering walls of the State-supported institution when begging does not pay any longer. I have known many families brought up under these conditions, and this system has existed for years, and still exists, and the ratepayers of to-day and to-morrow will continue to groan and sweat under the yolk of taxation for the care and support of the degenerates so long as this State-aided lunacy and pauper manufactory receives from the State and the ratepayers such solid, financial and moral support.

What is to be said of this system which leaves *even unrecognised* the poor girl of feeble mind, one wholly unprotected? To allow such a one with neither parent nor guardian to become the mother of illegitimate children—a sad victim to the tyranny of her hereditary defective organisation, with no moral sense to control her or State protection for her infirmity—is a scandal to the legislature of our country. Small wonder that the toll of the mentally dead is long, and that the brains of children numbed or warped in workhouse atmospheres of insanity, crime and pauperism, should in later years so often be numbered amongst the criminally insane inmates of the wards of the district or criminal asylums.

Poor Law reform is a necessity to any attempt to limit the number of the unfit. We all know that.

The science of eugenics has a great field for its educational literature, for although its principles are generally recognised, these principles are considered singularly inapplicable by interested people to their own individual cases.

I have read somewhere that when Napoleon was upbraided by Josephine for immorality, he replied "Morality applies to the common people; it does not apply to Napoleon"; and so in like manner people are inclined to think that eugenics is a very admirable and sensible science, but has no application whatsoever to their own individual lives.

How often is our advice asked by people of hereditary predisposition to insanity who are about to be married, and how often is our advice acted upon? What help does the State render us in endeavouring to educate men's minds to the dangers of the propagation of the degenerate from even known and proved defective parents? And when will legislation

aid us in encouraging a race feeling in contra-distinction to mere haphazard propagation, which for the sake of self-gratification sets at naught all science, reason, and physiological law?

Dr. Mott says the days of social surgery are not yet come. In asexualisation of the defective we have an obvious remedy, but fraught with many considerations, and so far as I can see the sterilisation of the degenerate would be only justifiable by our present knowledge in the grossest and most profound classes of degenerate persons who were wholly unassailable to reason and educational influences, or sexually perverted. At present liberty is absolute, and the results of this liberty disastrous to the attempts to limit the number of the hereditary insane.

Whether in the scalpel of the surgeon we hold the means of severing this Gordian knot in dealing with this eugenical problem must be left to the future to decide.

In conclusion, I would wish to quote an extract from that quaint collection of erudition, Burton's *Anatomy of Melancholy*, which deals with the causation of insanity from hereditary defect: "So many several ways are we plagued and punished for our fathers' defaults; insomuch that (as Fernelius truly saith) 'it is the greatest part of our felicity to be well born; and it were happy for human kind, if only such parents, as are sound of body and mind, should be suffered to marry.'

"Heretofore, in Scotland (saith Boëthius), if any were visited with the falling sickness, madness, gout, leprosie, or any such dangerous disease, which was likely to be propagated from the father to the son, he was instantly gelded; a woman kept from all company of men; and if by chance, having some such disease, she were found to be with child, she with her brood were buried alive; and this was done for the common good, lest the whole nation should be injured or corrupted. A severe doom you will say and not to be used amongst Christians, yet more to be looked into than it is. For now, by our too much facility in this kind, in giving way for all to marry that will, too much liberty and indulgence in tolerating all sorts, there is a vast confusion of hereditary diseases, no family secure, no man almost free from some greivous infirmity or other."

The above quotation is a remarkable pronouncement of the

principles of eugenics of the seventeenth century, and must make us think we are not so advanced as we might appear, for others have evidently tilled fields of thought which are regarded as of more modern cultivation. We can at all times work for and hope for the apotheosis of all mental abnormality, and this paper, though it contains little that is new or original, does deal with a subject which must ever be before us in considering the practical problems of psychiatry.

DISCUSSION,

At the Annual Meeting held in Dublin July 14th, 1911.

Dr. JOHN MACPHERSON said he had listened with great pleasure to Dr. Leeper's paper, which had the distinction of differing from many other papers on eugenics in that the author gave the results of his own observations. The Royal Commission on the Feeble-Minded had dealt very fully with the matter. In the medical evidence which was set before them one found that the opinions of the different schools were so contradictory that the Commission were compelled to take a middle course, and practically to lay aside the medical evidence altogether. There was one body of opinion who held strongly that positive eugenics, which was what Dr. Leeper called "social surgery," could be put into force at once. And the larger body of evidence, and he thought the more influential, was given to the effect that mental degeneracy and abnormalities of all kinds, including imbecility and idiocy, arose as sports, as variations, and would occur in the purest race, however carefully one might eradicate abnormalities and pay attention to breeding. That being so, it was considered futile to attempt anything in the way of positive eugenics. As a purely theoretical idea, he leaned to that view himself. He said that for the following reason: As Dr. Leeper pointed out, persons of a very low intelligence and very little self-control propagated their kind—illicitly or legitimately. But supposing one were to remove all those people out of the category of those who were allowed to propagate their kind, one had to consider what the effect of their removal would be upon the race. Would it, after all, have a very material effect? Would it be so important as to justify the proceeding? Then one had to remember that the great danger of the propagation of mental degeneracy came from people whom nobody could say were likely to, or might, produce degenerate offspring. For instance, they all knew that very capable and able citizens, both men and women, had children who turned out to be very degenerate indeed, so degenerate that if positive eugenics were in force there would be no question of dealing with them. But one could not go to a man in a good useful position, one who had a strong mind and a healthy body, and say to him, "Sir, you manifest symptoms which, in our opinion, lead us to suppose that you must be set aside from the main stem of your race." He thought one would be met there with a tremendous difficulty, therefore if one could not go back to those latent progenitors of degeneracy, he thought the application of positive eugenics to the small ultimate class who did produce degenerates would not effect the cure which was desired.

Dr. FLETCHER BEACH said he held very strongly that Dr. Leeper's view was correct. There were cases no doubt in which it was impossible to know that a particular person would produce a degenerate child, but when one saw the kind of cases which Dr. Leeper referred to, feeble-minded mothers going into the workhouse again and again to be delivered of their defective children, not once but many times, one concluded that some arrangement should be made for keeping that person in some institution so that she could not go on producing such children. He was quite aware that one argument which was used was that those who advocated such a policy were interfering with the liberty of the subject. But he, the speaker, contended that the liberty of the subject at present produced large numbers of defectives who went into workhouses, into prisons, and into inebriate

institutions. Sir Horatio Donkin told him that, in his prison experience, he found large numbers of the criminals there were weak-minded people. In addition it was known that there were large numbers in workhouses throughout the country who occupied the lunatic or imbecile wards of those workhouses. Also, inebriate institutions were filled with such cases. An important question was their expense to the rates. His contention was that if such people were put into institutions or colonies there would eventually be very few people to put into workhouses or prisons, and there would not be nearly so many in inebriate institutions, so that eventually the rates would not be any heavier than they were at present.

The PRESIDENT (Dr. DAWSON) said this was a subject to which he had devoted a good deal of thought, especially since the time when he investigated the condition of the City of Dublin from that point of view for the Royal Commission on the Feeble-Minded. He agreed with Dr. Macpherson that cases of weak-mindedness would arise sporadically *de novo*, as it were, from healthy parents. But, if he might be allowed to express himself strongly, it was futile to say that this touched the basis of the question at all. There was no doubt in his mind that what Dr. Leeper had put forward was absolutely true. In all workhouses, in all prisons, and in inebriate institutions, there were very many people who were weak-minded and who did propagate their species as soon as they got out. There were cases in which individual families had been inquired into, and it was found that large numbers of the feeble-minded were produced from a common stock. It had been discovered by the Eugenic Society that feeble-minded people produced rather larger numbers of children than did the sound-minded. Dr. Fletcher Beach had very accurately expressed his, Dr. Dawson's, views on the question, and that gentleman had drawn attention to the fact that not only were the inmates of workhouses and asylums, but also of the prisons, feeble-minded in a large proportion of cases. In the workhouse schools of the Dublin Unions, which were very large schools recruited from the workhouse population, he found about $7\frac{1}{2}$ per cent. of the children defective, as against $1\frac{1}{2}$ per cent. of the ordinary school-children of Dublin. In the prisons, as the result of a fairly exhaustive examination, he found about 12 per cent. of cases were feeble-minded, and the percentage of feeble-minded among those who were habitual inmates of prisons was very much higher than that. In the month during which he investigated Mountjoy Prison there were two defective women who came in four times each, that is to say they were committed to prison once a week regularly. Dr. Branthwaite, the Inspector of Inebriate Reformatories in England, said about 60 per cent. of inebriates in reformatories were feeble-minded. From the point of view of cost, it was obvious that those people threw an enormous expense on the ratepayers. Yet, although it sounded extravagant to shut up and keep under control for life people of that sort he believed it would be the cheapest thing in the end, and it would not require a very long time to eradicate mental defect, as had been recently shown by an interesting unintentional experiment in the North of Italy. Everyone who had read that charming book, *Whymper's Scrambles in the Alps*, would remember that the author spoke of the Valley of Aosta as teeming with cretins. When there two years ago he himself had seen no cretins, and was at a loss to understand the statement, and it was only recently that he discovered the history of that result. In former times the cretins used to be rather encouraged to marry one another, probably with the view of comforting them in their terrible condition. But a few years ago a religious order started an institution for them, with the result that last summer there were only two cretins in the whole valley. That change took place in a little more than forty years. If that were so, how long would it take to eradicate the bulk of the defectives who were now crowding the prisons, inebriate reformatories, workhouses, and asylums? He thought that in fifty years the complicated difficulties which arose in dealing with these people would have disappeared, and that the problem not only of the mentally defective, but of the criminal and inebriate, would become of rapidly decreasing importance for succeeding generations.

Dr. LEEPER, in reply, expressed his gratitude to the members present for the very kind way in which they had received his short and very indifferent paper. He felt very strongly on the subject, because for some years, earlier in his life, he had been connected with the Poor Law Service in Ireland, and while in that service he had convincing evidence day by day before his eyes of the absolute folly of

allowing degenerate women to go on rearing children at the public expense, and, indeed, encouraging the practice by the Poor Law system as administered in Ireland. In fact, he looked upon the workhouses of Ireland as lunacy manufactories run by State aid. Medical men were upbraided, and told that their calling was of no use because they could not cure the insane, and the public asked how the number of the mentally afflicted could be accounted for. Physicians should enlighten the public on this grave matter, and should demonstrate to them that the remedy lay in their own hands. If they wished to reduce the number of chronically insane in the country, they must deal with the people who were producing them. And when the question had been dealt with in the way which the President and Dr. Fletcher Beach had put forward, there would be a large reduction in the number of the insane in Ireland.

Causes of Sudden Death in Epilepsy, and Some Points in the Treatment of Epilepsy. By M. A. COLLINS, M.D., B.S.Lond., Medical Superintendent, Epileptic Colony, Ewell.

THE two subjects that I wish to bring to your notice to-day are sudden death during an epileptic fit, and the present treatment of confirmed epilepsy.

My attention was called to the first by a paper by Dr. Marchand in the *Gazette des Hôpitaux* recently. He quotes a statement of Rostan, who had charge of 500 epileptics at Saltpetrière, that apart from accident an epileptic fit never causes death. Dr. Marchand, however, has collected fifteen cases of sudden death during a fit, two of them in his own experience. In five of these death occurred from rupture of the heart or the aorta, in two from accidental obstruction of the respiratory apparatus by food, and in six by rupture of cerebral or meningeal vessels; twice congestion of the brain was found as a sole cause. In his own two cases, which were due to rupture of intercranial vessels, the ruptured vessels are said to have been quite healthy. I thought it would be of interest to compare his results with the experience at the Epileptic Colony at Epsom, which has been open for over seven years, and where, during last year, 30,000 fits are recorded. I felt that I should be quite safe in allowing that 200,000 fits have occurred, and I find ten cases recorded in which death has occurred during or almost immediately after a fit. The cause of death in two cases was choking from particles of food getting into the air-passages, one death was due to suffocation

during a fit at night time, and in the remaining seven cases, in one instance mitral and aortic disease together were found, adherent pericardium in two cases, and advanced fatty disease of the heart with evidence of chronic heart failure three times (one case being bed-ridden and the others invalids), while in the remaining case a cerebral tumour was found. In one case only was the brain noted to have been congested. I cannot recall seeing a case while at Bexley in which any pathological accident occurred of the kind described by Marchand, and in all the above cases a chronic lesion sufficient to cause sudden death apart from a fit was present, and so one must conclude that cases as recorded by Marchand are exceedingly rare.

With regard to the treatment of epilepsy, I am afraid I have no new treatment to bring forward, but I thought it might be of interest to hear a few results of the present methods. I will divide my remarks under the following headings: (1) Colony life; (2) dietary changes; (3) the bromides; (4) salts of calcium; (5) opium; (6) digitalis.

(1) I think colony treatment is ideal. The almost complete absence of restriction of liberty within a certain area, the open-air employment and other forms of employment which are interesting, avoid a great deal of the trouble so constantly found in asylum life amongst this class of patient. There is always a great physical improvement in the people who are in the open air, as far as weather will permit, practically all day. Each villa is built for thirty-eight people, who are in the charge of a married couple assisted by one other attendant, and each attendant takes a farm party of about twelve; ten remain in the villa in the morning to do the cleaning, and a tailor's shop, boot shop, weaving and upholstering, and clerical work in the stores are all utilised for the employment of colonists. We have no airing courts, and there is no fence to the grounds, but parole and observation work satisfactorily, and escapes are very few. The women, of whom we have sixty, do laundry, kitchen, and mending, and also make the clothing required. It was thought, however, that it would be advisable to have one villa with an enclosed garden, so that all types of epileptics could be admitted for trial, and a new hospital villa of the most recent type to accommodate fifty acute patients has just been erected and will shortly admit patients.

(2) With regard to changes in dietary, my results are some-

what contradictory. In May, 1907, the quantity of meat given per day was halved (from 5 to $2\frac{1}{2}$ oz.), and puddings were given. From January 1st to April 30th, 1907, 9,981 fits are recorded, and from June 1st to September 30th, 8,680 only. This works out at a reduction of 13 *per cent.*, but, remembering that in the later months the weather is finer, more time outdoors is possible, and perhaps this might unduly favour these months. For comparison I also took the period January 1st to April 30th, 1908, and find 7,916 fits only. On the contrary, I find less fits per night after a meat dinner than after fish, the difference, however, being trifling. These results are in favour of a reduction of meat, but apparently not of its complete absence, and when one considers the monotony of the purin-free diet, its results seem hardly worth the inconvenience to, and discontent of, the patient. These remarks refer only to chronic patients, however, and in more recent cases I have no doubt that the diet makes a great deal of difference in some individuals.

(3) *The bromides.*—The effect of these is very variable, some patients being quite unable to do without them, while others cannot take them in any form, even when salt is eliminated from the diet and the dose small. I believe that the epileptic fit is reflex in origin, and that the bromides act by raising the resisting power of the brain-cells to external stimuli, and that for this reason their use is always fraught with danger to the mental activities of the patient, and one cannot help wishing that the bromide treatment was less extensively used during childhood. I have noted the following bad effects from bromides: Great physical reduction, hallucinations, malaise, stupor, degraded habits, œdema and cardiac debility, a general lowering of the resisting power to disease, so that sudden changes in the temperature are very likely to be followed by bronchitis and pneumonia. On the other hand, in chronic epileptics who have been on bromide for many years the omission of the mixture has in many cases been followed by one or more of the following results: Increase in the number of fits, and also in their severity (in two cases sprained ankle during the fits, and in one ecchymosis of face and neck have occurred), attacks of mania, confusion and stupor, major attacks replacing minor attacks, and a greater degree of malaise following the fits. In one case a female who had been taking stront. brom. gr. xxx

twice daily for several years, the bromide was omitted because she had an attack of pleurisy with effusion. A slight increase of minor attacks occurred as she got better, but after getting up when convalescent she had 129 minor attacks in a week, KBr. gr. xxx *b.d.* stopping these very soon. A few cases are quite uncontrollable without bromide from mental excitement, a contradiction to some who are more irritable when they have no fits. In several cases no evil results have occurred, but physical and mental benefit have.

In some cases bromide abolishes the aura of the fit, and causes the patient to fall and injure himself in a way he did not do previously. In two cases with prolonged aura I have been able to avert fits for several months by simply giving a dose of bromide as soon as the aura is noted. In very many cases in which an immediate cessation of fits has followed the exhibition of bromide this effect wears off, and fits gradually begin to occur, and then a change of bromide will sometimes again cause a cessation of fits. I find little difference in the two salts I have used principally, *viz.*, strontium and potassium, except that from $\frac{1}{2}$ to $\frac{2}{3}$ dose of the potassium seems to have the same effect as the larger dose of strontium.

(4) *Calcium salts* I have never tried personally. Littlejohn, at Hanwell, reported success, but Maun, writing in the *Guy's Hospital Gazette*, found it useless, and Lallment and Dupony, at the Asylum at St. Yon, in fourteen cases had one death, no benefit, and in many cases so bad an effect that the treatment had to be abandoned.

(5) *Opium* I am finding useful in two cases who are intolerant of bromide. But I have not yet been able to complete the treatment by heavy dosing of bromide afterwards, so can express little opinion about it.

(6) *Digitalis* I found very useful in the case of one who had a very large number of fits, and in whom something like an 80 *per cent.* reduction occurred, but in several other cases I have found it quite useless.

To sum up, I think for the confirmed epileptic, colony life, a reasonable diet, and interesting employment in the open air, if possible, are the most satisfactory methods we have at present. Bromide should not be given unless excess of fits, malaise, or excitement absolutely demands it. (In the latter case bromides sometimes make colony life a possibility.) I

cannot help feeling that some epileptic dementia is bromide dementia, and not epileptic really.

In conclusion, I should like to record an interesting case of an ex-soldier, æt. 28, who has true nocturnal fits, after which he is violent and wandering for some twenty minutes or so, and who, in the daytime, has attacks of minor epilepsy, in which he rushes forward as fast as he can go, striking out at all in his way, smashing windows, etc., and struggling violently. His attacks may often be prevented by shouting his name in his ear the moment he shows the preliminary pallor. Syphilis is denied in this case; fits began at twenty-six, after a kick on the head by a horse.

DISCUSSION,

At the Annual Meeting held in Dublin July 13th, 1911.

The PRESIDENT remarked that there were many points for discussion in the paper, which was not only interesting on its own account, but because it was the result of extensive and ripe experience in the treatment of epilepsy. He would himself like to touch on one or two matters arising out of it. With regard to the superiority of the colony system, they in Ireland had had no experience of any special treatment of epilepsy there, because the country had no institution for epileptics at all. If epileptics were insane, they went to the asylums; if they were not insane they went to the hospital if they were in the *status epilepticus*; otherwise they made a precarious living as best they might. A point which he noticed when investigating the City of Dublin for the Royal Commission on the Feeble-Minded was that in Dublin epilepsy was regarded as a family disgrace, even more than was insanity, and he believed that he was often lied to when he was inquiring about fits. He thought that one reason, besides the sentimental reason, was that whereas a patient who had an occasional fit might earn his living very well, it might interfere with his getting employment if it were known. The conclusion which he had arrived at on general grounds was precisely what Dr. Collins had brought out, namely, that the colony system, with a not too rigid treatment, with the judicious use of bromides and fresh air, and employment in suitable cases, was the proper treatment for epileptics. He would be glad if Dr. Collins could tell the meeting how, in the matter of expense—a very important question in such a poor country as Ireland—the colony system compared with the system of closed institutions. In a short time some system must be adopted, and then the question would arise in an acute form. The Countess of Meath, a few years ago, offered a large sum of money, provided additional funds could be raised from other sources, to start a home for epileptics; but the offer had been left unavailed of up to the present. With regard to the use of bromides, he had been much interested in what Dr. Collins said about the effect which he had found bromides to produce in lowering the resistance of the body to disease. It was a point which one or two of his, Dr. Dawson's, cases brought out forcibly. For example, some years ago he had a case of *folie circulaire* in a gentleman who came to him in the melancholic stage. It passed off, and he became practically sane, but, judging from previous experience, it was known that a fairly acute maniacal attack would come on in the course of some weeks or months. He had an enlarged prostate, and it was decided that the interval was a favourable time for getting that gland removed, and this was done. Everything went well for a fortnight. Then a period of excitement commenced, and he became so restless that he, Dr. Dawson, decided to try a treatment which had been successful in that patient's case in another asylum before, namely, large doses of bromide. He did so, and, whether as the result of that or not he did not know, sepsis developed, and

the patient died from general pyæmia. It was an open question whether the bromide had anything to do with that, but possibly it might have caused a reduced resistance of his tissues to infection. He would be glad to hear from Dr. Collins whether he had had much experience in combining bromides with other drugs. He had a case once which was practically cured by adding digitalis to ordinary potassium bromide. He also had another case which tolerated bromides very badly, and he therefore administered bromopin. The patient was very comfortable and did not become bromised, and his fits remained as infrequent as under potassium bromide. The same case did very well on another occasion with cerebrinum Poehl, which was, at one time, strongly recommended for epileptic cases. His case showed remarkable improvement under it for three months. He was sure there were other points which members would like to speak upon.

Dr. BEVERIDGE SPENCE remarked that the paper was intended, no doubt, to be an eulogy on the colony treatment of epileptics. He did not wish to say anything opposed to that system, but the paper omitted one very important point. It was that the colony system enabled medical officers to remove from county lunatic asylums patients who suffered from fits. He was sure that such patients reacted very unsatisfactorily on the other patients who were housed with them in asylums. He was not sure that in the county asylum the epileptic patient had not as many advantages as had those who suffered from that disease in colonies; there was plenty of fresh air, the dietary was attended to with the same care, he was physicked as elaborately as in a colony, and he was not sure that the results were not as satisfactory. But the ordinary patients suffering from various forms of mental trouble were probably adversely affected by seeing patients about them tumbling about in fits. However one might classify them, it was impossible to prevent a certain amount of companionship between the epileptic and the patient who was mentally afflicted in the ordinary way. From that point of view, if from no other, the colony system was one which might very well be developed further.

Dr. BOWER would be glad to hear from Dr. Collins or any subsequent speaker whether they could confirm his own impression, as follows: In the last five or six years he had seen, on several occasions, sudden attacks of epilepsy in cases of dementia of very long standing. He did not remember so many cases years ago. One case which he had at present under care became insane more than forty years ago. He believed at that time she had mania, but he was not certain. In the case-book the description written was "insane"—not a very illuminating term. But after being a dement for forty years she suddenly began to have very severe fits, usually in the early morning or the middle of the night, lasting from ten to twenty minutes, and presenting all the ordinary signs of a severe epileptic seizure. A week ago she had three in one night. Another case was that of a male patient, æt. about 60, who had been a chronic dement for many years, he believed for as long as twenty years. He had been an inmate of many asylums, from one of which he escaped, and was found swimming in the Thames opposite Westminster Abbey. He was not trying to drown himself, but was simply swimming for his own amusement. After being with him, the speaker, twelve years, he began to have attacks of temper and violence, whereas the other case he mentioned did not. He developed in the same way severe fits, which came on about once in three months, but he had gone as long as nine months without a fit. Two or three other cases had occurred in the last five or six years in his limited experience. His recollection of previous years did not bring to his mind any case of the same sort, and he would be very interested to hear what was the experience of other members of the Association, and especially of Dr. Collins, as to those cases. He would like to hear what was the particular character of them, their cause, and whether they appeared to be of recent development, *i.e.*, more frequent in the last few years. He would also be glad to know whether there were any suggestions as to treatment.

Dr. HAYES NEWINGTON said he also had seen cases of the same kind as those mentioned by Dr. Bower, and they were also in elderly people. He thought the best statement as to the pathology of the condition, which put one on the line of treatment, was blockage of the rectum. Such cases were usually senile, so that their vessels were not as perfect as they should be, they suffered from cerebral anæmia and irritability, allowing of explosions, and there was considerable derangement of function. In one case he knew there are very severe fits indeed. He might be attended to by means of enemata in the ordinary way, but the fits

recurred occasionally. Yet if one particular man treated him and cleared him out thoroughly the fits ceased. He considered that many such sporadic fits were due to obstinate constipation.

Dr. DIXON wished to ask Dr. Collins whether he had come across cases of sudden death in epilepsy apart from other causes such as heart disease, hæmorrhage, etc., or conditions which might have been caused by failure of the respiratory centre. He would also like to know whether Dr. Collins had had in his experience a case of sudden death in epilepsy due to suffocation caused by the patient turning on to his or her face in bed. At the last meeting of the South-Eastern Division he read a paper in which he made the statement that he did not think such a thing was possible, although there were certain cases recorded. He tried to force his own nose and face into an ordinary pillow, in order to discover whether it would cause the respiration to stop. He found there was no real obstruction which was not capable of being overcome with a certain amount of effort. One of the medical officers at Epsom—he did not know whether it was Dr. Collins—wrote a paper some years ago on the treatment of epileptics by means of sodium bromide given in the diet in place of the potassium salt. He had adopted that in the case of his small number of epileptics, and with a great deal of success. He found it very successful not only in diminishing the number of fits, but because it did not affect the mental or physical condition of the patients who were treated in that way. The custom followed was, that when the midday dinner was given out, about half a drachm of sodium bromide was put on the patient's plate instead of ordinary salt. Patients who were being treated in that way had no salt given to them at the dinner table, and they accepted the sodium bromide instead of common salt, and they had the impression that they were using ordinary salt. He had not any statistics with regard to the reduction in the number of fits, but he knew that for some time they happened to run out of bromide of sodium, and he had great complaints from the nurses with reference to the general condition of the patients who had been having that treatment. The nurses said that the fits returned, and, generally speaking, the patients were not as well as they had been before. Previously to using bromide of sodium in that way, he had, in a routine way, given them a mixture of potassium bromide. But he found the results were not satisfactory, and he had to give up that treatment because it produced all sorts of trouble in the epileptics. Though they did not have the fits so frequently, they were very much more troublesome in other directions, and their general condition was not as good, on the whole, as formerly. He therefore wished to record his gratitude to those who suggested that treatment, and to say he had found it a great success in the asylum with which he was connected.

Dr. LEEPER said he had found Gélinau's dragées very useful in epilepsy. Recently he had a case in private which was very bad for many years, having suffered many things from many physicians, as the result of which he was no better, but rather worse. The dragées acted without producing undesirable symptoms. Almost every substance under the sun had been given for epilepsy from time to time, and he did not wish to elaborate the therapeutics, but he asked whether the efficacy of dragées was generally known. They were very useful indeed in limiting the number of fits, and appeared to act when all other drugs had failed.

Dr. DRAPES said he had seen many cases of chronic insanity develop epilepsy after a long period of years, and when those fits occurred he regarded them generally as evidence of the beginning of the end. When he saw such patients he generally found that they died a short time after developing epilepsy. He agreed with the idea that there was a degeneration of blood-vessels going on for a certain time, and when they reached the next stage, possibly some fresh pathological mischief in the brain, there was, on Dr. Hughlings Jackson's theory, a number of small hæmorrhages from the vessels which caused the epilepsy. Something of the kind might occur in those cases and lead to a fatal result. He regarded epilepsy as an even more mysterious disease than insanity itself; and that largely because it was so irregular and uncertain in its effects. One could see patients who had been in the habit of having one fit or two fits a month suddenly develop as many fits as 200 in twenty-four hours. Such an onset generally proved that the end was near. But it was difficult to conceive of a pathological condition of the brain which could be responsible for that sudden development of an enormous number of fits.

He believed that bromide had but little effect in congenital cases of epilepsy; but in acquired epilepsy his opinion was that the effect was great. He had seen people reduced to a condition of imbecility from the administration of bromide alone, therefore Dr. Dixon's suggestion of using a sodium salt instead of potassium was of value. He wished to ask whether Dr. Collins had used strontium bromide, and if so, whether he had found any difference between that and the other salts of bromide. A much advertised "remedy" was, he believed, largely used by the public, and he had seen people who had taken it become imbecile. There was no doubt about the effect, as when they stopped taking the drug their intelligence returned. Nothing of the kind should be continued long. Last year a friend of his own developed fits from cerebral exhaustion. She saw two or three London physicians, and by one of them was ordered a drug called bromocarpine, a combination of bromide of potassium and pilocarpine. The effect was to reduce her to a condition bordering on imbecility, so that it was thought she would have to be sent to an asylum. When he knew about it he recommended that the medicine should be stopped for a while, and within a week her intelligence began to come back. She has quite regained normal mentality, and he was certain that she was much worse after taking the drug than she would have been had she been left alone.

Dr. NOLAN remarked that no member had yet mentioned a combination which he had used for a number of years—in fact, ever since he had seen cases of severe epilepsy at Richmond Asylum. At that time there were very unhygienic surroundings there, and there were some severe cases of epilepsy in a small ward. The fits exercised a depressing influence on their physical condition, and he felt anxious about the patients; and on reading the recent literature he had found that a combination of salicylate of bismuth and bromide of potassium produced excellent results. He wrote to Professor Fere, of Paris, who was the author of the combination, and he kindly sent valuable information as to the results he had obtained and the mode of treatment. In the speaker's use of it afterwards it seemed to bring about intestinal asepis and to exercise a sedative effect on the nervous system as well. But he did not expect to find that even that combination would be a panacea for all forms of epilepsy, and it did not prevent him administering other remedies which were indicated by the physical condition of the kidneys, the heart, and other organs of the individual patient. It was not an ordinary disease. In the course of a very long experience he had tried other drugs which he had read of, but from none of them could he obtain the same uniformly good results as with the combination of bromide of potassium and salicylate of bismuth. It was possible to give large amounts of it without producing acne; there was no heaviness or stupor produced, and in every sense it seemed to sooth the case. The patients he had now under care were in a public asylum, but were all segregated and never came in contact with the other patients; they had their own airing court and diet, and their particular medicine, with laxatives. He considered it was very important to keep them absolutely free from constipation, as Dr. Hayes Newington had already mentioned. Though they were not treated in the colony system, the results were good; there was no excitement, there were no fights, and the general health of the patients was comparatively good and the number of fits small.

Dr. BOND said he wished to congratulate Dr. Collins on contributing what he thought was the first paper to a medical society emanating from the Ewell Colony. He would personally congratulate him in that it fell to him, Dr. Bond, seven years go to open that Colony, and he was when there tempted from time to time to bring forward some results of methods which he was trying to introduce there. But he felt that of all the classes of patients they were called upon to treat in asylums, epileptics were, above all, those about whom one required to be cautious when speaking of the results of treatment. It was clear that a long time must lapse without treatment and with treatment to enable any positive statement to be made. But he was delighted to see now, after this lapse of time, the Colony having been open seven years, that Dr. Collins was coming forward to give his results of treatment which had been going on there, and also the results of absence of treatment in some of the patients, comparing the results with those of the new treatment which he was evolving. In the main, he entirely agreed with all that Dr. Collins had said. Where Dr. Collins and he differed—and Dr. Collins knew of the difference, for they had talked it over—was in regard to the bromide ques-

tion. He was early taught at Morningside by Dr. Clouston that a great responsibility was incurred by withholding bromide from epileptics; teaching of that weight soaked into one, and it was difficult to be ready to cast aside the bromide treatment. Moreover, he did not know what was to be put in its place. Gowers laid it down—and it had not been contradicted—that epilepsy was a self-perpetuating ailment; in other words, every fit a person had predisposed to the next one, and the doctor neglected his duty if he did not try to stop those “next ones.” So far as he knew, from the medicinal point of view, there was nothing which could be done with marked benefit but give bromides. But he admitted that every case had to be studied on its merits, and the effect of the bromide carefully watched. It was for that reason he gave, when at Ewell, strontium almost entirely, *in lieu* of the other salts, because he found it was not necessary to watch its effects with such anxious care. Though he must have used bromide of strontium (with $\frac{1}{2}$ doses of liquor arsenicalis) in hundreds of cases, he had never seen resulting from it any soporific or skin effect, such as was seen with some of the other bromides. Dr. Dixon had spoken of the use of the bromide salts in the food; that certainly was not used when he, Dr. Bond, was at Ewell Colony. He thought the idea originated with a continental writer.

Dr. FLETCHER BEACH said he had had no experience of sudden death occurring in epilepsy. He had experience at the Chalfont Colony for Epileptics, which was opened by the National Association for the Employment of Epileptics. Every patient for the Colony must be employed. He did not gather from Dr. Collins whether he was able to get any considerable portion of his patients employed. But at Chalfont employment was found to be the best way of making the inhabitants happy and comfortable. Most of the patients admitted had been unable to get employment because fits came on, and as soon as that happened the employer dismissed them. At Chalfont there were ten homes with 250 patients, no home being built to hold more than twenty-five colonists at one time. That limitation of number to each home was found to be a very successful arrangement. The colonists were employed at various things, according to what they were able to do. The earlier the age at which colonists could be admitted, the better were the results. When the Colonies were first opened they took in men aged 25 to 30 years. As time went on deterioration was observed, and it was determined to admit younger colonists. Cases aged 15 and 16 were admitted, and the results were very marked. The fits diminished, the colonists became employable, and no deterioration was afterwards found. Lately another system had been established. Two homes had recently been established, one for boys and one for girls, where they were educated and treated for their epileptic fits as well. The result of that arrangement and treatment was that the deaths were remarkably few. He remembered one period of four years without a death. Not only could they be employed, but they were also able to play games just as outsiders could. They had a cricket club and football club, and the members of them beat all the village clubs, and they had no more epileptic fits. The treatment was to give 30 gr. of bromide of potassium at night, but only to those who had fits. Those who were not having fits were not treated, except that they were dieted, the diet being carefully chosen for each particular patient. He found the fits ceased more remarkably under treatment by strontium bromide than under any other form of bromide. Whether it was due to the amount of bromide in that particular preparation he did not know.

Dr. GREENE said he would like to mention one case which had died immediately after an epileptic fit. He made a *post-mortem* examination, but was unable to ascertain what was the cause of death. The case was that of a girl, $\text{æt. } 22$, and she was the only case in which he had found perfectly healthy lungs. One point upon which he would be glad of information from Dr. Collins was as to the feeding of epileptics. As epileptics were crowded into asylums in Ireland, their treatment could not be specialised very much in those circumstances. But their food was put through a mincer in order to ensure that they should not choke; that was scarcely fair to the epileptic, and he would be much interested to know whether Dr. Collins had had many cases of choking during meal-times. In his own asylum he had discontinued that method, but paid careful attention to the cutting of the meat, and he had not had any accidents. Another point in the paper which was of great interest to him was that concerning the woman who

had a prolonged aura, and in whom by giving one dose of bromide Dr. Collins was able to prevent the occurrence of fits for a long time. That case led one to hope that if such lines were followed in some of the epileptic cases, bromides might be so given as to avoid bad effects.

Dr. O'NEILL said that when he was an Assistant Medical Officer at the Richmond Asylum, Dr. Lawlor segregated, on the female side, all the epileptic patients, because his opinion was that they should have special care and attention, and he thought it was not right, as Dr. Spence had remarked, that convalescing patients should see other patients having fits. Dr. Lawlor had strict ideas as to dietary; he gave no meat, but relied upon fish and milk; and in the matter of medicine he gave a mixture of bromide of potassium, arsenic, and nuxvomica. The latter was given three times a day. Twice a week they had 5 gr. of calomel, and no doubt that treatment was successful; the number of fits was reduced, and when they did occur their severity was not as great as it had been. That method of proceeding was continued for years, and proved very efficacious. He (Dr. O'Neill) was strongly of opinion that sufficient attention was not paid to isolation and dietary in the treatment of epileptics.

Dr. T. O'C. DONELAN said that for epileptics, when the fits were frequent, he reduced the diet to simply bread, milk, and small quantities of fish; he guarded against constipation, and found that the results were often very encouraging, the intensity of the fits diminishing and fresh epileptic mental outbreaks in some cases entirely subsiding. One case had come under his care—a female—whose fits were of a very severe type, and frequently occurred in successions of from ten to sixteen at a time, followed by prolonged violent excitement. This girl, on the treatment he mentioned, gradually settled down, the intensity of the fits diminishing, and the mental symptoms almost entirely subsiding, so that she became a constant useful worker. In course of time she was transferred to another asylum, where she received ordinary treatment and diet; in a short period she relapsed, becoming violent and dangerous. Ultimately she was re-admitted; her state was similar to that on first admission. The same treatment was tried, and she again became quiet, easily managed, and a good worker. He only mentioned this case as an interesting example of benefit that apparently accrued from special dieting.

Professor BOLTON said he had felt very interested in the remarks of Dr. Bower, as he had had a curious experience himself. For some years he had seen odd cases of chronic insanity developing epilepsy, but during the last few years he had seen quite twenty. Even in the last few months he had seen seven. The majority of the patients had chronic insanity with some dementia, and were people who were beginning to break down. He could confirm the remark of Dr. Drapes that when this happened the case, in most instances, was going to the bad. Some two or three months ago a curious case was admitted, a senile patient with melancholia. She was very resistive indeed, and gradually lost ground. She did not willingly take her food, so that she had to be fed forcibly, and had rectal injections. It was thought she would have died. Her temperature was 104° F., when she began to have epileptic fits. She had a series of thirty or forty. She was moribund for two or three days, but afterwards came round, and in a week she would be discharged recovered. It was the first case he had seen where a patient who had not had a fit before developed epilepsy and did not go downhill to death. Dr. Drapes had also remarked that the occurrence of epileptic fits was frequently a sign of exhaustion in the patient. He, the speaker, for this reason had for many years been in the habit of treating the status epilepticus on two lines. If the case developed acute status suddenly, without having had fits for a considerable time, he had given them chloroform, and in every case the fits had stopped; and, at least for some days afterwards, they had not recurred. One such case in which this treatment failed died some time afterwards, and was found to have a gross lesion. There were other cases in which the patient had had fits day by day, and then developed status epilepticus; for such he had given stimulant treatment from the beginning. He would be glad to hear whether in epileptic colonies much status epilepticus was seen. If so, was it the practice to confine themselves to the ordinary sedative treatment?

Dr. COLLINS, in reply, said he was in a difficulty in attempting to satisfy his questioners as to the expense, as the colony he was connected with was so small that the rate per patient was brought out at a high figure, and there was nothing

to compare it with except asylums of over two thousand patients. It worked out high because, also, the administrative staff in London was very much the same. The establishment was now being extended, and he thought that, as a consequence, the expense would come down. It would need no increase in the medical and clerical staff to carry it out. The relative figure was, at present, 13s. 6d. a week, compared with 10s. 1d. The epileptic was always an expensive patient, and required night supervision. Also, the villas were small, containing only thirty-eight patients, compared with the large wards in an asylum, and the latter could be run with practically the same staff. Sometimes the epileptics were allowed to walk about in couples, the idea being that one should look after the other, and work together without supervision. But one did not like to leave them alone in villas in which fires, hot water, etc., were. A good deal of the expense was accounted for in that way. With regard to the use of bromide with digitalis, the case he mentioned was on that combination. Digitalis alone he had not found of use. With regard to the accident of choking, he had had experience of only one epileptic choking, and that occurred quite recently. The patient had syphilitic stenosis of the trachea, and a few minutes after a fit became stertorous, regurgitated, and died. *Post-mortem*, a half-digested fig was removed from the larynx. The fig was in much the same condition as minced meat would be. In the other case of sudden death recorded at the colony, a piece of meat was the cause, and its weight was reported as 12 gr. only. Dr. Bond would remember the case. He did not consider there was any advantage in mincing meat for epileptics. Moreover, it was unpopular, and they were particular what they gave to epileptics. In the case in which the fig caused death, choking was not suspected, even up till the *post-mortem* examination. With regard to suffocation, he had always believed with Dr. Dixon that it was impossible to be suffocated in a fit, but he had seen one case in which that did occur. It was in the case of a girl, æt. 17, who turned over on to her face. He was called to see her, and saw her in exactly the position in which she was found. There were the marks of her teeth and lips on the sheet, which, apparently, had been drawn up into the mouth. Her first convulsion had occurred, and the rigidity fixed her in that position. He now believed that could happen. With regard to fits occurring late in life, he had no personal experience of cases in which that happened; but in his institution there were one or two cases in which the fits were recorded as beginning after they had been insane for some time. In some of them the fits did not continue, and there had been no fits recently. He had not used any of the other forms of treatment which had been suggested in the discussion. He had been thinking of trying sodium bromide in the diet in the case of the inhabitants of one villa, and comparing its effect with that in another villa without it. He wanted to choose for comparison villas in which the number of fits was about the same. In the care of epileptics he did not think the stoppage of the fits was the most important thing. He approved of the plan of taking epileptics away from their fellow patients, in which case it did not matter whether they had a few more fits or not. They were in a very much better position, and the fits were not treated more than was necessary. One had not always done one's best for the epileptic patient when one had stopped his fits. It was better for him to be active, able to work, and to get about, even with occasional fits, than to be a dribbling dement without fits. There had been but few cases of status epilepticus in his experience at Ewell, and when they did occur, they were treated by first emptying the bowel, and then allowing a reasonable time to see if the fits showed signs of ceasing. If not, the patient was given an injection of chloral and bromide by the rectum. So far that had not failed to stop the condition of status epilepticus.

Mental Symptoms in Association with Choreiform Disorders. By EDWARD MAPOTHER, M.D.Lond., F.R.C.S.Eng., Assistant Medical Officer, Long Grove Asylum.

MENTAL symptoms almost constantly accompany choreiform movements whatever the origin of the latter, and cases exhibiting such movements are fairly common in asylums.

The conditions in which choreiform movements are seen may be classified as follows:

Sydenham's chorea, or chorea minor.

Huntington's chorea.

Chorea dependent on gross organic lesion of brain.

"Senile chorea."

Hysterical chorea.

In the last of these the movements are the direct result of the mental disorder. In the rest the nature of the relationship is less clear, but this will be discussed later.

Considering first *Sydenham's chorea*, it is unnecessary to do more than refer to its relationship to rheumatism and other infectious diseases. The question, however, of the co-operation of mental factors in causation is of interest. *Imitation*, formerly alleged as a factor, plays no such part. All the cases attributed to this prove on investigation to be of the hysterical variety. The reported cases have mainly occurred in epidemics, such as those described by Steiner in Prague and Weir Mitchell in Philadelphia.

A history of *fright* preceding the onset is given in many cases. In the majority the connection seems very remote. In other cases the cause of the alleged fright is so trivial as to suggest that the degree to which the patient was affected indicated the existence of the excessively emotional state premonitory of the disease. In a few rare cases where chorea seems to have immediately followed a severe fright, it is probable that the disease was of the hysterical variety. Such cases are reported with notably less frequency of recent years since it has been recognised how common hysteria in children really is.

Prolonged mental strain such as that of cramming for examination has generally been considered an important factor in causation. Chorea minor is common enough at the age corre-

sponding to the end of school life and the period of examination, but notably less so than during the early years of school life.

The nature of the movements in chorea minor is too well-known to require elaborate description. In the early stages and in mild cases throughout the course of the disease there may be only a gross inco-ordination of voluntary movement.

In well-marked cases spontaneous involuntary movements are also present. Most commonly universal, they may be limited to one side or even one limb. They are sudden, jerky, inco-ordinate, devoid of all rhythm, and bear no resemblance to any purposive movement. In some cases they can be temporarily controlled by an effort of will, though generally they are exaggerated by attention. They generally, but not always, cease during sleep.

The movements in Sydenham's chorea persist on the average eight weeks. Though undoubted cases of the disease have become chronic and movements persisted for years, yet this is so rare that a duration of more than six months should always make one suspect the diagnosis.

With regard to the mental symptoms accompanying chorea minor three types of cases may be distinguished.

In even the mildest cases some defect is perceptible, especially in the prodromal period, consisting of restlessness, marked defect of attention, and excessive emotionality. In most cases the child becomes irritable and unmanageable, but occasionally unduly sentimental. These symptoms persist after the development of the motor symptoms and a moderate degree of confusion with apprehension may be added, but rarely definite disorientation or hallucinations. It is easy to overestimate the amount of mental defect on account of the grotesque but involuntary grimacing, and on account of the defect of articulation which may render the patient almost inaccessible.

Such mild mental symptoms disappear gradually but completely with the motor symptoms and leave no residual defects.

Grave mental symptoms are relatively commonly met with in young women, are less common in children, and rare in young men. In young women chorea insaniens is commonly associated with pregnancy, especially the first, and history of one or more previous attacks is commonly met with.

The onset may be sudden, and death has occurred in 130 hours. More commonly it is insidious, and after a week or so both motor and mental symptoms become aggravated. Generally marked mental symptoms co-exist with marked motor; rarely they may develop before the motor symptoms or during their subsidence. In some such cases the movements throughout are slight or replaced by paralysis.

The mental symptoms usually take the form of a delirium with confusion and disorientation, great restless and incoherent chattering. There is generally great apprehension, and hallucinations of sight are common, generally terrifying, but variable and not elaborated. Hallucinations of other senses are much more rarely met with. In severe cases exhaustion follows and the patient passes into stupor followed by death. This terminal stupor is occasionally preceded by a period of lucidity with clear memory of what has preceded it. This recollection is also often seen in cases which survive.

Though this delirium is the form of mental disorder most commonly seen, it is not by any means the only one. In one of the cases I have seen, the mental state resembled a mild maniac phase in a case of manic-depressive insanity. The patient was a young woman pregnant with an illegitimate child and with previous history of chorea. She exhibited no confusion, disorientation or hallucinosis, but marked exhilaration and pressure of activity. She was hilarious, silly and irresponsible, given to making small jokes about her condition and laughing uproariously at them. Recovery from both mental and motor symptoms followed delivery at term.

The danger to life in chorea insaniens is very grave. The main causes of death are exhaustion, septic absorption from bedsores and hyperpyrexia. The prognosis is much worse when old valvular disease exists, but does not seem to be much influenced by recent endocarditis.

Mental recovery is almost invariable in those cases which survive.

The third type of psychosis in connection with chorea is a condition following it of prolonged dulness, apathy or despondency, and inertia lasting some months. There is exaggerated liability to fatigue and disinclination for exertion of any kind. Delusions are rare, and if they occur are transitory and not associated with any strong emotion.

The pathological findings in cases of Sydenham's chorea are very variable. In many cases no morbid changes have been found. In some swelling and chromatolysis of the cells of both cortex and basal ganglia have been present, in others vascular changes have been found such as hyperæmia and periarterial exudation, emboli and minute areas of softening or hæmorrhage. In rare cases extensive hæmorrhage has been present.

A feature described at one time as pathognomonic was the presence of so-called chorea corpuscles—highly refracting concentrically laminated bodies connected with the blood-vessels, and especially those of the basal ganglia. These, however, have not been found constantly in fatal cases of chorea, and have, on the other hand, been often found after death from other causes.

Various types of micro-organism have been found in the meninges, generally micrococci. Leucocytosis of the cerebrospinal fluid has been found in a few cases.

Although *post-mortem* findings are neither constant nor pathognomonic, there is a good deal of clinical evidence suggesting that the disease should be regarded as organic and dependent, not merely on a toxic alteration of function, but on a definite anatomical lesion perhaps too fine to be demonstrated by present methods. The occasional strict limitation of the movements or of the paralysis points to this. In rare cases the extensor response has been found in the affected lower limb.

Of the more chronic forms of chorea the most interesting is the hereditary form, first fully described by George Huntington in 1872. He recognised the four characteristic features of the disease as seen in typical cases—the onset of chorea in adult life, its association with mental deterioration, its steady incurable progress, and the transmission of the condition by direct heredity. The disease had been previously referred to by Waters, of Franklin, New York, and by Lyon, also of New York, but neither seems to have noted the connection with mental disorder.

Many variations from the typical clinical picture are met with. The onset of the first symptoms is most commonly about forty. This, however, is by no means constant. In one of the cases I have seen the disease started at about twenty. A few genuine instances have been published where choreiform

movements were present in the new-born infant of a patient suffering from the disease.

The nature of the heredity is of considerable interest. In the case of one family, transmission exclusively through the females has been observed, but in most families the disease is transmitted by both sexes, and both are equally affected.

Of recent years much attention has been devoted to the question whether the transmission follows the laws of Mendel.

As noted by Huntington the transmission is always direct, that is from affected individuals. The members of the same generation who pass the customary age at which the disease develops and are not affected never transmit the disease to their offspring. This suggests that if the disease follows Mendelian rules the condition of liability is "dominant," the condition of immunity "recessive." Were such the case one would expect to find that all the offspring of an individual, in whom the disease arose *de novo* and who mated with a normal individual, would exhibit liability to the disease. Each member of this generation, who mated with a normal would produce children of whom, on the average, half would be liable neither to develop nor transmit the disease; the other half would be liable to develop it, and to transmit their liability in the same proportion as their parents, and so on in succeeding generations.

Cases of origin *de novo* of the disease are very difficult to discover. It seems probable that most of the American families in whom the disease has been traceable for many generations have a common ancestry. Generally, if one attempts to trace the disease back, one reaches a point at which all information obtainable is that the disease existed previously in the family of one or other parent. Some cases where no ancestral history has been at first obtainable have been disposed of by the discovery that the reputed father of the affected person was not so in fact.

With regard to the proportion of offspring to whom the disease is transmitted by the affected in later generations, there are many sources of fallacy. One of the principal sources is the late age at which the disease usually develops. Jelliffe, however, who has studied this question, expresses his belief that the records agree with the hypothesis that the transmission accords with Mendelian rules. Bateson found that of the

offspring of affected persons mated with normals 117 were affected and 99 normal.

The motor symptoms of the disease are generally noted some years before the mental disorder. In the early stages there is generally little spontaneous involuntary jactitation, but gross inco-ordination and wide sweeping movements of the limbs accompany attempts at voluntary action. Later spontaneous involuntary movements develop. These are quite irregular in rhythm. In time a tendency does arise for each part to carry out a particular habitual movement, but it is always purposeless, never systematised as in hysterical chorea. The movements are much slower than those of Sydenham's chorea, and have not their brusque, jerky quality. Often they can be temporarily controlled by voluntary effort.

The gait may be either shuffling and spastic or of a reeling ataxic type. The articulation is quite characteristic, and unlike that seen in any other condition.

With regard to the mental symptoms, in about 25 *per cent.* of the cases there is a history of some degree of congenital defect. In about 3 *per cent.* this amounts to definite imbecility, in the others it is merely stated that the patient has always been excessively nervous, excitable, and seclusive.

In the majority of cases the mental defect develops some years after the motor symptoms. Less commonly the mental symptoms develop *pari passu* with the motor; they may even precede the latter. Nearly always their onset is quite insidious, but exacerbations may occur at any stage, and the mental symptoms are sometimes said to have come on suddenly, just before admission to the asylum.

The severity of the mental defect bears no ratio to the severity of the chorea. In rare instances mental symptoms have been completely absent. Cases have been reported in which persons presenting the motor manifestations in an aggravated form have carried on an occupation requiring the exercise of considerable intelligence.

On the other hand, cases of insanity occur in undue proportion among those members of affected families who never exhibited chorea, and it is probable that some, at least, of these represent the result of the same pathological process.

The course of the mental disease generally consists of a slowly progressive deterioration lasting for years, and marked

by exacerbations, followed by much more rapid progress shortly before death.

The earliest symptoms noted in many cases are a loss of interest in habitual occupations and amusements, and a failure of moral sense. In this stage a good many of the patients become tramps or drunkards.

As the disease progresses the most marked noteworthy and constant feature comes to be a failure of the power of sustained attention. Often there is no marked defect of memory. The patient gives a good account of remote events and of any striking recent event. There is no disorientation either in regard to place or time. Comprehension of speech is good, and the capacity for simple judgments and deduction is unimpaired. But if one gives the patient a somewhat complex order involving the performance of several successive actions or the observation of a series of phenomena, his incapacity for sustained attention is immediately manifested.

The patient's actions often have a peculiarly impulsive character. This was well exhibited by one of the cases I have seen at Long Grove. If not watched she would stagger aimlessly round the ward garden; suddenly she would jerk a plant out of the ground, or dart at a fellow patient and pull her hair without any ascertainable reason.

The affective state varies in different cases. Most commonly the patients are mildly despondent. Occasionally there is well-marked euphoria.

Huntington, in his original paper, mentioned two patients who, in spite of the existence of the disease in an aggravated form, spent all their time persecuting young women with their attentions.

In almost all cases there is a complete absence of insight into their own disabilities, both physical and mental. This is the more remarkable as the disease is, of course, well known and regarded with peculiar dread among the sane members of the families in which it occurs.

Periods of exacerbation occur in the majority of cases, during which both mental and motor symptoms are aggravated. Sometimes they are marked by increased irritability and suspiciousness with a tendency to impulsive violence. In other cases there is increased despondency and threats of suicide; genuine determined suicidal attempts are rare, and never depend on the patient's realisation of his own condition.

During these periods hallucinations may occur, and delusions, which are generally rather vague, variable, and unsystematised. All common types of depressive delusions may be met with, *e.g.*, delusions of reference, of unworthiness, or of unknown impending disaster. The patient may seem rather bewildered, but there is not generally any gross clouding of consciousness or disorientation.

Towards the end of life the mental symptoms undergo rapid progress. The deterioration becomes more uniform, memory fails, disorientation appears or comprehension of speech may become so defective that the patient is almost inaccessible.

Various gross macroscopic lesions have been found in cases of Huntington's chorea: Firstly, signs of inflammation of the cerebral meninges, adhesions between the pia and dura mater, and hæmatoma of the dura. Secondly, atrophy, more or less gross, of the convolutions. Thirdly, and less frequently, the presence of small foci, of hæmorrhage, or softening in the sub-cortical white matter or the basal ganglia.

No one of these conditions is constant.

Numerous microscopic lesions have also been described. The conditions found have been degeneration of the cells of the cortex and basal ganglia, signs of interstitial inflammation with infiltration by leucocytes and overgrowth neuroglia, and lastly, vascular sclerosis with lesions secondary to this. The relative importance of these changes varies in different cases and in the opinion of different observers.

On the whole degeneration of the cells of the cortex seems to be the most constant change, and it has been regarded by most observers as primary. There is nothing particularly characteristic about the nature of the degeneration. It resembles that seen in the senile brain.

Other observers have considered the process a true encephalitis, others that the essential change is vascular sclerosis, while some regard the overgrowth of neuroglia as primary.

Lannois and Paviot have found in sections stained by Nissl's method characteristic blue granules scattered among the cells of the cortex and adherent to them. They are absent or scanty in the white substance, but even more abundant among the cells of the basal ganglia, where they are mainly distributed along the course of the blood-vessels, many lying in the peri-

vascular sheaths. These granules, however, have not been constantly found by other observers.

The cases described under the name of *senile chorea* form a very heterogeneous group. Many of the cases resemble Huntington's chorea in every particular with the exception that hereditary history is absent. I have seen one such case—at present under treatment at Long Grove Asylum. It is noteworthy that in such cases there is not only no history of previous occurrence in the family, but no tendency to transmission of the disease to the offspring of the affected person.

Others of these cases seem to be the result of diffuse arterio-sclerosis of the brain. In one such case which I have seen, typical choreiform movements developed after an attack of hemiplegia due to thrombosis with marked increase of pre-existent mental defect, but the movements were quite universal from the first and as marked on the sound as on the paralysed side. *Post-mortem* there was in addition to the localised softening an extreme grade of universal arterio-sclerosis of the cerebral vessels.

Choreiform movements, the result of gross organic disease of the brain, may be seen either in children or adults. In children the conditions with which they are commonly associated are infantile hemiplegia and diplegia. In fact most cases reported as infantile or congenital chorea are undoubtedly examples of these diseases. The condition may be due to prenatal causes, to injury at birth, the result of protracted or instrumental delivery, or to infectious inflammatory processes after birth. Such cases are characterised by the presence, in addition to chorea, of some degree of paresis with spasticity and often maldevelopment of the affected parts. In a majority of the cases epilepsy occurs.

With these physical defects is associated some degree of imbecility, which is generally more gross in the diplegic cases.

Chorea is also met with in children with hydrocephalus, and I have seen it in an idiot whose condition resulted from very protracted posterior basic meningitis.

The gross lesions from which chorea commonly originates in adults are softening, hæmorrhage, and tumour. I have also seen it in a case of traumatic hemiplegia due to a depressed fracture of the left parietal bone. Rarely similar movements

are seen in cases of general paralysis. Usually in such cases the choreiform movements develop considerably later than the paralysis. They are usually co-extensive with the latter, but a few cases have been described where, starting in the paralysed limbs, they have subsequently become general. The movements are slow, and resemble in character the athetoid movements more commonly seen in such conditions, differing, however, in their wide distribution.

The mental condition in cases of chorea due to gross disease of the brain presents nothing characteristic. It resembles that of patients with similar lesions but without chorea. In the cases with tumour the symptoms consist of increasing stupidity and drowsiness passing on to coma; usually in the case of softening and hæmorrhage, of despondency, sense of fatigue, and emotional instability with more or less dementia.

The chief interest of such cases, especially those with a localised lesion, consists in the light which they throw on the question of the essential nature of the lesions producing chorea and the pathological basis of the relationship between chorea and mental defect.

The main questions in regard to the origin of chorea is whether the movements are the result of discharge from the cells of the cortex or of lower level centres in or near the basal ganglia, and whether the lesions are paralytic or irritant.

Three main theories have been held; first, that the essential condition is irritation of cells of the cortex directly or indirectly; second, that it is irritation of the cells of lower level centres directly or indirectly; third, that the lesion is destructive and cuts off inhibitory impulses from the cortex, thus permitting the development of automatic activity in lower level centres.

In most of the recorded instances where a *post-mortem* has been obtainable on a case exhibiting hemichorea, a well-defined lesion has been found in the neighbourhood of the optic thalamus or corpus striatum; in certain other cases the red nucleus and the superior cerebellar peduncle have been involved. Other cases are recorded where the co-existence of hemianæsthesia and hemianopsia suggested a lesion in the former region.

Such pathological changes as have been described in Sydenham's and Huntington's chorea are generally present both in cortex and basal ganglia. The clinical history of Huntington's

chorea throws some light on the question. Those who believe chorea to be dependent on disease of the cortex point to the almost constant association of mental with motor symptoms and the not infrequent occurrence of epilepsy in those affected or in other members of the family in the same generation. Those, however, who believe that the motor and mental symptoms are the result of the same process affecting different parts, point to the facts that there is no proportionality between the two, that the onset of motor symptoms generally precedes that of mental by several years, and that in rare cases mental symptoms may be entirely absent.

Strong evidence in regard to this question is to be found in the observation of Roncoroni, who has produced choreiform movements in animals by the application to the cortex of tampons of cotton-wool soaked in disodium phosphate solution, while electrical stimulation in the same region produced epileptiform convulsion. Similar results are said to be obtained with creatin solution, but both require confirmation.

The last condition with which chorea is associated is hysteria. Two types of chorea may be seen in this condition, the rhythmic and the arrhythmic.

The *rhythmic* type is that more commonly met with. This was the form of chorea first noted. It occurred in epidemics in the fourteenth and fifteenth centuries under the influence of religious excitement. The condition was ascribed to possession by the Devil, and by way of treatment pilgrimages were made to the shrine of St. Vitus in Zabern. Such epidemics are now never seen in civilised communities, but occur among various savage tribes still. Although this condition was confused by Sydenham, who described chorea minor with the latter disorder, they are totally distinct and hardly mistakable by anyone aware of the distinction.

The movements may be constantly present or occur only during crises of complete dissociation. The same movements are repeated in each affected part at more or less regular intervals. These movements have a co-ordinate character suggesting rather voluntary action than the involuntary jerking of other forms of chorea. They are reproductions of some action associated in the patient's mind with an event with strongly emotional accompaniment, which led to the outbreak of hysteria.

The patient is unconscious of this origin of the movements. When they occur only in crises she may be unaware of their existence. Even when they continue during periods in which the patient's consciousness of her surroundings appears undisturbed, she is only half conscious of them, and readily forgets their existence if the affected part is hidden by a screen. Anæsthesia of the affected part is often present.

The patient may in the waking state have lost all memory of the incident which led to the commencement of the movements. Even then it may be obvious what they express. In course of time they often become simplified or otherwise altered, but it is generally possible to interpret them from the words which accompany them, or by means of information obtained in hypnosis. They can be checked temporarily or permanently by suggestion.

Under the name "*arrhythmic hysterical chorea*" two entirely different conditions have been described. One closely resembles the rhythmic form, but is arrhythmic, because the patient during a hysterical crisis does not reproduce a single action, but plays the whole of the scene with which her consciousness is occupied.

The other form of arrhythmic hysterical chorea consists of a hysterical reproduction of the movements of Sydenham's chorea. This condition is not so widely recognised as the rhythmic form—in fact, many text-books of medicine merely state that hysterical chorea is rhythmic. It is, however, fairly common. I have seen three instances of the condition myself—all originally diagnosed as Sydenham's chorea. The diagnosis is of importance, as the condition is generally readily cured when recognised, but persists as long as it is mistaken for Sydenham's chorea. Moreover, treatment by arsenic involves considerable danger of neuritis if prolonged for a year or so.

In some cases the condition has followed immediately or after an interval a genuine attack of Sydenham's chorea. In nearly all there is obtainable a history of opportunity to become acquainted with the movements of this disease. Many of the patients, however, deny that the sight made any particular impression at the time, which may be years before the outbreak, and often there is a history of fright or other strong emotion immediately preceding this.

The condition is naturally commonest in young women, but Chambard has described a typical instance occurring in a man over eighty as the result of an accident causing trivial physical injury but marked shock.

In this form of hysterical chorea the movements have all the irregularity, lack of rhythm and jerkiness of those seen in Sydenham's chorea. They differ, however, in several points. Their amplitude and violence is often exaggerated. Attempts to restrain the movements of one part may be met by an obvious increase in force of the movements.

On the other hand, if the attention of the patient can be focussed on one part the movements in others may cease. Generally there is no such disability as would be inevitably present in Sydenham's chorea. The patient can feed and dress herself and even carry out such fine movements as threading a needle or sewing. When disability is present it may be of a contradictory kind, *e.g.*, a girl may be able to knit but unable to sew.

Two points in the history are often suggestive—sudden onset and unduly long duration before the patient comes under observation.

Lastly and most important, the condition is readily curable, as a rule, by suggestion. In two of the cases I have seen the movements were at once arrested by the application of a Faradic battery. In other cases they have been cured in a day by the administration of arsenic which the patient knew to be the customary treatment.

The patients in these cases usually present numerous stigmata of hysteria and a history of other manifestations is generally obtainable.

It is necessary to apologise for the discursive nature of this paper and the summary treatment of many points.

DISCUSSION,

At the Annual Meeting held in Dublin July 14th, 1911.

The PRESIDENT (Dr. DAWSON) said the contribution was upon an extremely interesting subject, and members were very glad to welcome Dr. Mapother back to the home of his ancestors. Dr. Mapother belonged to a well-known Dublin medical family and his father had held the position of President of the Royal College of Surgeons in Ireland. Certainly there was no proof in this case of degeneration in an old family.

Dr. HUBERT BOND said he had not the opportunity of hearing the whole of Dr. Mapother's paper, but he could congratulate him on what he had heard, and

on the exhaustive way in which he had dealt with the subject as well as the good use he had made of the unusual set of cases of chorea of one form or another, which they at Long Grove had been fortunate in having. One point which he heard the author dwell upon was the late age of onset of the hereditary chorea. There was one case of hereditary chorea which the author would remember with him (Dr. Bond), one which was by no means late, but was in early adolescence. It was a case in which the history had been obtained at very great length, involving certainly four generations. The patient's brother was also an example of hereditary chorea, the onset being in adolescence. One peculiar point about the brother's case was that although he was now a patient in an American asylum, and he, Dr. Bond, had written to the Superintendent of that asylum to ascertain further facts, that gentleman did not know that he was the subject of chorea. Apparently since he had been in that asylum he had not manifested evidences of chorea, although the mother of the patient told him, the speaker, that when she last saw him he was just like her daughter. Another point which struck him, a minor one, was that he did not think it was always very easy to diagnose, from the nature of the movements, whether a case was one of hysterical tic, or whether it was one of hereditary chorea. Dr. Mapother would remember one case which was at Long Grove now, in which we all came to the conclusion that it was hysterical tic until he (Dr. Bond) ascertained that in two generations there had been other cases. They had now made up their minds that it was an example of hereditary chorea.

Dr. FLETCHER BEACH said he saw many cases of chorea when he was connected with the West End Hospital for Diseases of the Nervous System; and he saw a certain number of cases of acute chorea. Most of them were of the same character. He remembered two or three cases in which the movements were so violent that the patient had to be padded round in a crib in every direction in order to restrain him from injuring himself. In nearly all those cases delirium was present.

Dr. DIXON said he had had a case of chorea insaniens associated with pregnancy, which was published in the *Dublin Medical Journal* seven years ago. The patient was admitted on certificate in the ordinary way to the Three Counties Asylum, and the certificate ran as follows: "The patient, M. A. H—, who is suffering from chorea in a severe form, is in a highly emotional condition. She gives me graphic descriptions of visions which she has seen, whilst awake, of a haggard, tall old woman, who speaks to her. She tells me that she frequently hears the voices of absent friends in conversation downstairs. The patient believes, and states, that her mother and her husband deliberately refuse admission to friends who call to see her, though she has heard the friends' voices. Such friends have never visited the house. She is extremely violent and abusive to her mother, whom she has struck more than once. She believes that she has heard conversations between her husband and his relatives in which she is accused of extravagance." On admission she was in a highly nervous and emotional state. She appeared now to realise, for the first time, that she had been brought to an asylum. She was greatly alarmed, and clutched him imploringly by the arm, and asked that she might be kindly treated. The choreic movements of face, head, left arm and leg were most painful to see. On being reassured and put to bed, she quieted down considerably, and got a little sleep after a bromide and chloral draught. On visiting her next morning she appeared to be much more rational—the emotional weeping and incoherent excited talk had ceased and she was calm and resigned, and were it not for the motor disturbance one would have thought her quite well. Dr. Dixon was then able to obtain the following history from her. She had been a laundry maid in a public institution. In the preceding February she had an attack of rheumatism, and, while still only convalescing, was married in March. She fell downstairs in September, but apparently was not much hurt. The choreic movements began about a week after that accident. The ring finger of the left hand was the first part affected, and from this part the movements gradually extended to the arm, and eventually the whole of the left side. She suffered a lot from loss of sleep, and felt queer and nervous and more or less excited. She denied having heard voices, or seen visions, but acknowledged having thought she saw the tracing of a woman's face on a lamp glass, and that when she pointed it out to her friends they laughed at her, and that she then smashed the glass in order to get the idea out of her head. She had just recently lost a brother from phthisis, and not long previously had lost a sister from the same disease. She was æt. 22,

healthy, well nourished, and in the eighth month of pregnancy. There was no tendency to anæmia, her appetite was good. The only points made out on physical examination were a slight roughening of the first heart-sound, exaggerated knee-jerks, and a marked pigmentation about the ankles and front of lower leg. That could not have been due to arsenic, and looked like what was seen in women who sat much in front of the fire. The treatment consisted of rest in bed, regulation of the bowels, light nutritious diet, Fowler's solution, and a bromide and chloral draught at night. For the first week the patient appeared to be doing very well—there was no aggravation of the motor disturbance, and the mental condition seemed almost normal. The question then arose whether it was justifiable to detain her. After some consultation it was decided that, owing to her advanced state of pregnancy, it might be a risky procedure to discharge her, as it was not known at what time she might again become maniacal, or when premature labour might be needed. A few days later she woke up about one o'clock in the morning, when she became very noisy and excited, and could not be kept in bed, saying she heard her husband calling outside the window, and insisting upon going to him. She now required the services of a special nurse, and hyoscin hypodermically (gr. $\frac{1}{15}$). On one occasion a colleague was called up, and administered morphine, with the result that the patient became wildly excited, smashed the windows and furniture, and attacked and severely handled two nurses. Up to this time the choreic movements were well marked and troublesome. Finding that the bromide and chloral draught had begun to lose its effect, he administered 40 gr. of sulphonal. She got excellent sleep, and from the first dose the choreic movements almost entirely ceased. Her mental condition, however, remained unsatisfactory. She had frequent crying fits, and when she was asked her trouble she said she thought she was going to be done away with. She heard the nurses and patients passing defamatory remarks about her, accusing her of all sorts of wickedness. She was constantly holding conversations with people under the bed. She continued to take nourishment well, and kept in good bodily health until labour began on November 25th. This proceeded quite normally, and she was delivered of a healthy male child on the morning of the 26th. The puerperium was uneventful. The child was taken from the mother and fed artificially. She did not show the least interest in the child, but said she felt greatly relieved, and better. The child was removed by the husband in a couple of days, but she did not want to see it, and said she could not realise it was hers. She, however, gradually improved mentally, and was allowed up on the tenth day. The first letter she wrote to her husband when convalescent was much underlined, the second less so, and later her letters became quite normal. She became convalescent, and was able to discuss her illness intelligently. She was also bright, intelligent, and industrious, and showed much appreciation and gratitude for the treatment received. No residue remained of nervous twitching or paresis. She was discharged quite recovered on January 30th, 1905.

Dr. STODDART said that what struck him about the paper was the exceptional number of cases of chorea which it dealt with; and he wondered whether possibly cases had been included which were really some other kind of disorder, such, for instance, as athetosis in the organic cases. He had seen very few cases of Sydenham's chorea associated with mental disorder, and it was remarkable that in the majority as soon as the mental disorder began the chorea ceased. Apart from the cases of chorea insaniens, he had investigated the mental condition of ordinary cases of chorea in general hospitals. But his attention was especially drawn to it in connection with an observation by Marie in respect to cases of Huntingdon's chorea. He noticed that Dr. Mapother said the memory was unaffected in the early stages. Ordinary memory was unaffected, certainly, but Marie drew attention to a variety of disordered memory which might be termed loss of ideational memory. He tested it by asking the patient to name a dozen flowers or a dozen animals. In view of that, he, Dr. Stoddart, some time ago investigated the memory of cases of chorea in a general hospital to see if the same condition existed, and he found the same affection of memory in ordinary Sydenham's chorea. He wondered whether Dr. Mapother found that to be the case in chorea insaniens.

The PRESIDENT congratulated Dr. Mapother on the long series of cases which enabled him to write with such authority. Dr. Stoddart's remarks concerning the

loss of ideational memory were of great interest, and he would be glad to know whether Dr. Mapother noticed that in any of his ordinary cases of chorea.

Dr. MAPOTHER, in reply, thanked the President for his kind references. With reference to Dr. Bond's remarks concerning a particular case at Long Grove, it was true that at first all regarded the movements as of the nature of tics. That illustrated one of the points in the paper—the tendency for the movements in Huntingdon's chorea, after a time, to attain a stereotyped form. The same movements were generally repeated, but irregularly, and they were quite purposeless. In reply to Dr. Stoddart, he did not think any of his cases could be called athetosis. He understood that athetosis affected the terminal segments of the limbs, but in his cases they were quite general movements. He had not attempted to discover whether that peculiar loss of visual memory which had been described as Huntingdon's chorea, was present in cases of Sydenham's chorea. In fact, only recently did he become aware that that had been described.

A Report upon the Bacteriological Investigation of the Blood in Fifty Cases of Insanity. By W. T. SEWELL, M.D., D.P.H., Assistant Pathologist to the Royal Victoria Infirmary, Newcastle-on-Tyne, and COLIN McDOWALL, M.D., Senior Assistant Medical Officer, County Asylum, Cheddleton.

WITH the ever-increasing number of processes proved to be due to the action of micro-organisms, bacterial and protozoal, it is natural that a similar line of research should be suggested in the study of the psychoses. It has long been realised that the classification and differentiation of the various conditions by mental signs alone is confusing and unscientific. Gradually more importance has come to be placed on general clinical observations as indicating broadly the primary disturbances in the economy of the body, secondary consideration being given to mental symptoms as showing the change effected in the individual nervous system by the general disturbance.

We are arriving slowly, but surely, at a "causal" rather than a resultant classification. Thus constitutional disturbances, as fever, gastric disorder, furred tongue and blood changes such as leucocytosis, are now looked upon as evidence of the infective origin of mental diseases. The non-infective group consists of cases showing no general constitutional symptoms; and these must be looked upon as degenerative processes, *i.e.*, senile dementia. As in general pathology, the line of demarcation between these two groups is not always very distinct, as, for example, in senile dementia we have occasional acute mental attacks, which might be considered to be of "infective"

nature. There are, however, two conditions in which the "infective" nature is almost surely established. In the one alcohol is the cause, and in it the mental symptoms are extremely varied. In the second condition syphilis is the essential factor.

It is one thing to talk of a disease being of an "infective" nature, but quite another to determine the nature and source of the infecting agent. Tetanus is an infective condition. Here the agent is a powerful toxin elaborated by bacilli lying in the depths of a septic wound. There is nothing to be detected in the blood-stream, but the poison absorbed gives rise to very serious disturbances in the central nervous system. Again, in diphtheria, we have no infecting organism in the blood-stream. The disease is caused by a bacillus which gives rise to a more or less characteristic lesion on a mucous membrane, and the graver effects are caused by a poison absorbed from this, acting on the nervous system and heart. Cholera is characterised by intense intestinal lesions with profound and rapid collapse, and yet the causative spirillum never makes its way out of the intestinal canal. The general symptoms are undoubtedly produced by substances absorbed from the intestines, although these substances have never been demonstrated experimentally. In enteric fever and pneumonia the causative micro-organisms actually multiply in the blood-stream from the onset of the disease, giving rise to general ill-defined disturbance, and at a later stage, settle in the intestinal wall and lung respectively, there determining the clinical pictures of the conditions.

Then we have a group of cases characterised almost entirely by profound general disturbance due to the presence in the blood-stream of micro-organisms gaining access from a septic focus, *e.g.*, puerperal fever. These we would call the true septicæmias.

The occurrence in these cases of secondary embolic foci of suppuration, as in infective endocarditis, is signified by the term "pyæmia."

These examples are given as a rough survey of the field in which the infective mental conditions must be included. We must, nevertheless, bear in mind that a great number of non-specific, and, for the most part, mild disorders, are undoubtedly due to the action of the products of bacteria, although the

particular organism or organisms are not definitely recognised in every case. Such is the case in intestinal disorders, with headache, furred tongue, etc., and in the disturbances of health due to carious teeth.

It is necessary at this stage to recount the various clinical methods and observations which are used to diagnose these specific diseases, and the reasons for assigning a causative *rôle* to the organism in each case. To begin with the true toxic diseases, tetanus and diphtheria, in the first of these conditions the character of the general disturbance draws our attention to the primary focus, which might otherwise have been allowed to pass unnoticed, and a bacteriological examination reveals the presence of the specific bacillus. It is possible with this organism to reproduce the condition experimentally. In diphtheria the primary lesion in the throat is more or less characteristic, and an examination of this shows the presence of a specific bacillus. Should the primary lesion escape notice, the general symptoms, such as paralysis, may be characteristic enough to draw attention to the throat, and the organism may then be detected even at this late stage. In typhoid fever the organisms may be found in the blood-stream from an early stage of the disease by withdrawing a large quantity of blood and making suitable cultures from it. Later, after the inflamed follicles of the intestines have broken down, the typhoid bacillus is to be found in the stools. The same methods may be applied to pneumonia. In cholera, the only means of establishing a specific diagnosis is to identify the cholera spirillum in the stools.

The method employed to discover the infecting organism in the septicæmias is to examine the blood. The history of the case will usually lead to the discovery of the focus of entry, and there possibly the same organism may be found, completing the clinical investigation.

In the above cases the bacteriological examination has become a comparatively simple matter, only requiring careful technique to be carried to a successful issue, as the organisms found are of a stereotyped and well-defined character.

In addition to the purely bacteriological investigations, more importance is being placed every day on hæmological and serological examinations.

In typhoid fever it is a simple matter to demonstrate the

presence of agglutinins in the serum of patients, these substances acting in high dilutions on the typhoid bacilli. It is well known that this is now the ordinary clinical test for enteric fever.

Bacteriolysins are also to be detected, especially by the hæmolytic method of Bordet and Gengou, and this method has been of service in establishing the causation of whooping-cough, and in the diagnosis of syphilis, gonorrhœa, etc.

A study of the blood-cells in the various conditions has also been of some use in diagnosis.

In pneumonia, for instance, there is a gradual increase in the white cells of the blood, or a leucocytosis, until the crisis, with a gradual return to normal after convalescence. In typhoid fever, on the other hand, there is no increase in the white cells of the blood. In septic processes there is almost invariably a leucocytosis, whether the organisms have gained access to the blood-stream or no. In purely toxic conditions such as diphtheria we still have a degree of leucocytosis.

Too much stress must not be laid upon the occurrence of leucocytosis, as there is almost always some septic mischief accompanying the specific infection.

By this is meant the septic trouble is secondary, but though secondary it is a very vital matter, as exemplified in phthisis and absorptions that occur in cancer ulcerations.

Bruce pointed out very clearly that leucocytosis occurs in the acute insanities, and a paper published by one of us confirmed this fact, and showed that the degree and nature of the leucocytosis affected the prognosis of the individual case.

Having briefly given the accepted facts in regard to the typically infective disorders, it is reasonable to try to apply them to acute insanities and to see how far they may be made to bear upon the subject.

The possibilities suggested by analogy as to the psychoses, are :

(1) That the symptoms are caused by the local action of bacteria.

So much anatomical and histological investigation has been carried on in this connection that this suggestion may be dismissed immediately. It is, however, probably true in the case of general paralysis, although the *Spirochæte pallida* has not so far been demonstrated in the process. It is, however,

very exceptional to find the organism in the tertiary lesions of syphilis.

(2) That the poisons are formed by organisms actually circulating in the blood-stream, *i.e.*, that the condition is a septicæmia. It is with this theory in mind that most of the bacteriological work has been done.

(3) That poisons are absorbed from some focus at a distance, the focus being either a definite lesion or a cavity harbouring an abnormal flora. This is the view which appeals to us most.

The results of the work done in regard to the bacteriology of the blood of the insane are most confusing.

The Italian workers, notably Ceni, were among the first to search in the blood-stream for the organism producing this toxic change. Ceni's work led to the conclusion that organisms were only to be found in the blood late in the disease, and that the state of confusion or delirium must be produced by toxins before the entry of bacteria into the circulation. He found streptococci, pneumococci, staphylococci, *B. tetragenus*, *Bacillus coli* and *Bacillus pyocyaneus*, usually as a single infection, excepting when death was approaching, when the infection was generally a mixed one. The presence of this septicæmic condition was always accompanied by fever.

In 1893 Bianchi described an organism found constantly in the blood of cases of delirious mania, but later allowed that a proportion of cases showed the presence of cocci.

Dide and himself found the enterococcus of Theircelin in a considerable proportion of cases of various clinical types. Lewis Bruce has described a streptococcus which he has on several occasions isolated from the blood in acute mania. This observer has done a great deal of suggestive work to prove the significance of this organism in the causation of the disease. This includes the demonstration of agglutinins to the organism in the serum of patients, and alterations in the opsonic index of the same.

He has also indicated an alteration in the flora of the mouth and intestinal canal in these cases, and has detected the streptococcus in the urine. Our idea in undertaking this work is, if possible, to establish a connection between the abnormal presence of organisms in any situation in the body and any clinical type of insanity. This investigation must include

examination of the blood, cerebro-spinal fluid, skin and urine, mouth, throat and nose, and the intestines.

It is a much simpler matter to examine a fluid which normally is sterile than to differentiate the various organisms which are present in such situations as the skin, or intestine. Having regard to the fact that the recorded work done on the blood was rather inconclusive, and that it appeared possible from clinical observation that the blood might not be sterile, we have undertaken this part of the work first.

We have examined the blood in fifty cases of insanity, taking them at random as they were admitted to the asylums.

The series included :

	Males.	Females.
Excitement with confusion	7	5
Melancholia	16	11
Chronic psychoses	9	2

The method employed was as follows : 100 c.c. of nutrient broth were put up in glass-stoppered bottles and sterilised in an autoclave at 120° C. The neck and stopper of the bottle were covered with sterile wool and paper and then tied. It was found that a badly fitting stopper or a loosely tied cover readily admitted contaminating organisms, and a close watch had to be kept to prevent such accidents. The skin of the forearm was prepared either by thorough scrubbing with soap and water or by painting with tinct. iodi ; in either case methylated spirit was poured upon the part immediately previous to the use of the syringe. From 5 to 10 c.c. of blood were withdrawn into a sterile metal syringe from a vein made prominent by compression, and at once injected into the bottle of broth. On return to the laboratory the bottles were placed in an incubator at 37° C. for twenty-four hours. The appearance in the cultures of *Staphylococcus epidermis albus* warned us that more rigid precautions were necessary in dealing with the skin, and in these cases the culture experiments were repeated, some on several occasions. Some trouble was also caused by the contamination of the bottles as previously mentioned, but our attention was soon called to these accidents, and control experiments served to eliminate them.

In only one instance did we find an organism in the blood-stream—a *Staphylococcus pyogenes aureus*.

Now we may at once make a confession : this investigation

was an attempt to confirm the conviction of at least one of us that micro-organisms would be found in the blood of the insane. Regarding the case which gave a positive blood-culture of *Staphylococcus pyogenes aureus*, it was satisfactory to get this result, because it shows that our methods were correct. The subject of the case was a melancholic who had attempted suicide by gashing her wrist with a hatchet. She was admitted with an extensive sloughing wound from which pus freely exuded. The staphylococcus had in this case nothing to do with her mental state and was in fact really "secondary" to that condition.

It has to be acknowledged that the results of our work as far as it has gone are negative rather than positive. This small paper has no conclusions with which to close; all we can say is that we have found no evidence that the acute insanities are a septicæmia, but we believe that they are caused either by the absorption of toxins from abnormal flora, or—and more probably—the abnormal absorption of toxins from micro-organisms which naturally have their place in the body.

DISCUSSION,

At the Annual Meeting held in Dublin July 13th, 1911.

The PRESIDENT (Dr. DAWSON) remarked that in view of the importance which people of late years were inclined to attribute to toxic conditions in the production of insanity, this paper, which was in the nature of a preliminary study to an extended investigation, was of great interest, and he would be glad to hear remarks on the subject.

Dr. STODDART said he was much interested in Dr. McDowall's results. There had been a tendency of late years, a tendency which he rather deplored, to regard all insanities as due to the action of micro-organisms. The cases which had struck him most particularly as unlikely to be due to micro-organisms were the confusional cases on account of their ætiology. One came across many cases of acute confusion, the direct result of mental shock. Such an instance was that of a man who saw his mate hauled up by a band which was driving a machine, as a result of which his mate was scalped. The man immediately became acutely confused, and remained so for many months. Another case was that of a girl who woke in the morning and found her grandmother lying dead beside her. She became confused, and remained in that state for eighteen months. Another case was that of a girl who was suddenly jilted by her lover, immediately became confused and remained so for many months. Cases of the kind with such an ætiology could scarcely be caused by the invasion of bacteria, or by such circulating in the blood, nor was it likely to be due to toxins arising from flora, intestinal or elsewhere in the body. Psychasthenia could scarcely be regarded as due to any infection. Mania and melancholia were commonly regarded as being caused by micro-organisms but, there again, one could not help reflecting that the disease was so often due to hereditary influences, and if the disease was also caused by an infection of any kind, then one must regard the hereditary transmission as being somewhat of the nature of a hereditarily low opsonic index for certain micro-organisms. Nevertheless, such matters as these had to be investigated, and the systematic investigation which had been undertaken by Dr. McDowall was a very great satis-

faction to him (Dr. Stoddart). He hoped that the researches in the future would be conducted on other lines, and that it would be less necessary for time to be taken up by medical officers in investigating bacteriology.

Dr. HELEN BOYLE said she would like to quote a case which seemed to be toxic. Ten years ago a woman was sent to her as a melancholiac, having been suffering from delusions for fifteen years. Her delusions took the form of thinking she was a source of infection to people and animals, and she would not even go into the stables where she had horses—she was very fond of animals—because she was afraid of infecting them. She overhauled the patient carefully and satisfied herself that it was simple melancholia, and gave a bad prognosis, thinking that after such a prolonged illness there was but little chance of convalescence. But after trying various sedatives, etc., in vain, she put the patient on creasote and maltine, the former because her breath was very offensive. She improved in a fortnight in an extraordinary way, and at the end of six to eight months she was perfectly well. She believed the patient was still well. She saw the patient in Edinburgh last year, and she had been doing a good deal of work. That seemed to be a case of infection from the intestinal region.

The PRESIDENT said the fact that Dr. McDowall found *Staphylococcus aureus* in the blood in the one case in which he got a positive result interested him because he had a similar case, only in that case the source of infection with *Staphylococcus aureus* was never discovered. The patient was an elderly lady who had been extremely depressed and had gradually sunk into a condition of dementia. She began to get curious temperatures, which could not be accounted for, and repeated examinations failed in detecting any reason for them. It was not thought that she was likely to live long, but from her temperatures it was concluded it would be well to have an examination made of the blood. For some reason, that was no sooner done than she proceeded to get well physically, and had remained physically well ever since, though there was no mental improvement. The blood contained a pure culture of *Staphylococcus aureus*. It was remarkable that the authors of the paper had not found that the insane were specially liable to invasion by micro-organisms, because he thought most of those present were under the impression that there was greater liability to such invasion, but in any case that did not affect the possibility that many forms of insanity might be due to the absorption of toxins. He thought many cases of insanity were at all events very much aggravated by the absorption of toxins, especially from the intestines. Dr. Helen Boyle's case was of particular interest from that point of view. He, like everybody else, had been trying the so-called Bulgarian milk, and there had been some cases which seemed to benefit from it. He would like to know whether Dr. McDowall had tried Bulgarian milk, and if so, whether he had obtained any particular results from it. In reference to Dr. Stoddart's remark that acute confusion was unlikely to be toxic, he, Dr. Dawson, thought the causation of this condition probably differed in different cases. But even if it were the fact that a case of insanity was preceded by a shock, or what might be called moral conditions, that did not necessarily mean that the toxic action might not have a considerable share in its causation. The same might be said with regard to heredity. It was possible that shock might so lower the resisting power of the tissues as to render them particularly liable to the action of toxins, and that heredity might consist, as Dr. Stoddart himself suggested, in an unusually low degree of resistance to certain bacteria, an illustration of which was seen in the case of tuberculosis.

Dr. McDOWALL, in reply, said he had not investigated the results of giving Bulgarian milk. A series of operations were being commenced in the laboratory for the same purpose, namely, removing, if possible, the source of infection. It had been suggested by many that the colon was the probable hollow viscus which held the toxic material. It was therefore intended to do Mr. Lane's operation of short-circuiting. Enough had not yet been done in that direction to enable them to say whether it was or was not a success, but no doubt the result would be published. He was very grateful for the way in which he had been listened to, as, although the investigation involved a good deal of work, the results hitherto had been very small.

On Mental Inspection in Schools. By SIDNEY J. STEWARD, M.D.Camb., D.P.H., L.R.C.P.Lond., School Inspector for South-West Surrey, late Assistant Medical Officer, Devon County Asylum.

THE examination of the mental condition of children in elementary schools presents many difficulties, the foremost being lack of time, owing to the large number of routine physical inspections which have to be completed within the limit of school hours, rarely allowing so much as ten minutes for each child; however, in the smaller rural schools, when it is impossible to get to another school within the same session, owing to distance, there often is sufficient time to enable one to make a detailed examination of some of the mentally defective, and dull and backward children.

Since it is presumably the improvement of material with a view to educational development of the mind which is primarily sought in medical inspection, much more good would surely be effected by supplementing "mental inspection" in every school.

To carry this out properly under present conditions is impracticable, but, if medical officers could be appointed to examine systematically (with a view to special tuition for those requiring it), all those children who at nine years of age are quite unfit for standard I, or at that age, or earlier, are suspected of being mentally abnormal, much might be done to increase their efficiency in after life, and the teachers and children in the upper standards would gain by their removal; up to eight years of age the majority of them may well remain in the infant school as the training is more or less suitable.

It is only children of a very low type of intelligence, and those with a marked hereditary or moral taint, who, in my opinion, should be sent away to special schools or colonies, and over them a life-long supervision is desirable; their number would, I think, be greatly diminished by such an inspection, as many who are now treated as mentally defective, especially those who show great improvement under special tuition, are probably not defective at all, and might be recognised, in the first instance, as belonging to the much

larger class of dull and backward children, who could be made into useful citizens by means of special tuition in centres for manual training, without incurring the stigma and other disadvantages attached to a school for the mentally defective.

Such centres already exist in many counties and their number is steadily increasing; each one should be able to provide for a small class of suitable backward children, selected from the schools which feed it, who would be given a practical education on lines between the ordinary and the special schools.

In order to discover the mentally defective and the dull and backward, and to be able to prescribe a course of training likely to be of greatest benefit to each individual, it is necessary to make a careful physical and psychological examination, and to consult with the teachers. To attempt to come to a diagnosis in a few minutes by using half a dozen standard tests (the same for each child regardless of his circumstances) must often result in an inaccurate conception of the child's intelligence and ideational type, especially if the examiner has little or no experience of the normal; a considerable time should be spent on each case, not only to overcome shyness and other emotional difficulties, but to enable one to make the tests numerous and varied, in order to avoid confusing experience with intelligence, and to enable one to ascertain the range of the higher faculties, especially of association of ideas, judgment and reason, *i.e.*, "common sense," the most difficult to estimate, and, at the same time, probably the most important factors in determining the child's capacity for looking after itself, and hence in distinguishing between the mentally defective and the dull and backward.

I find that a printed form, such as the one subjoined, reduces the clerical work and recalls essential points.

The teacher's report, which is printed on one side of a single sheet of foolscap, gives some indication of the lines on which the child's mind tends to develop under ordinary tuition, and, with supplementary information from a parent, supplies facts as to temperament, emotions and moral character which might not be elicited in a brief interview.

The medical form is printed on three sides of a folded sheet of foolscap, the first side being devoted to history and environment, the second to the physical, and the third to the

psychological examination, the fourth side remaining for special notes or subsequent reports.

The family and personal histories, home circumstances, physical state, stigmata, etc., may suggest a cause, and thus influence the prognosis; they may also enable one to detect backwardness due merely to physical causes, or environment, remediable by means other than special tuition.

It is important to obtain corroboration of the family history, as given by the parent, either from the teacher or the local clergyman, when possible. I have more than once received an entirely fictitious history given through shame of confessing to insanity, alcoholism or immorality.

The apparatus required for the psychological examination, apart from the contents of the pockets and of the "school bag," consist of a tape-measure, some string, and large, coloured beads in a tin box, a humpty-dumpty book, an envelope containing various picture postcards, and three pieces of cardboard, having emery paper pasted on one side of them, and cut out as a circle, a square, and a hexagon respectively.

Tests should be adapted to the nature and environment of the child, *e.g.*, rural subjects for the rustic, and must therefore be varied, both in number and in kind, according to circumstances. The psychological headings are arranged in order of ascent, from the lower to the higher faculties. Many of the tests cover more than one heading.

The general appearance attitude and gait having been noted from observation of the child as he entered the room, his power of perception, including word-perception, may be shown by his handling the cardboard shapes and comparing scale-weights placed on the open and extended palms (so that their size may not be palpable) while the eyes are kept closed; by naming from sight, and after handling (the eyes being shut), a knife, pipe, box of matches, forceps, etc., by naming objects in the illustrations of, and reading simple words in, the humpty-dumpty book; by copying a square, a diamond, and figures with more complex sides, and by writing from a copy. Colour-perception and co-ordination by threading the beads, matching their colours and shades.

Motor response and co-ordination have come into play in handling the articles used for perception, and in undressing and dressing for the physical examination. In these and in

further tests note should be made of impulsive and slow response, of secondary inertia, of antics, or of katatonic signs, and a full record should be made of the child's manual accomplishments at home and at school with the opportunity that he may have had for acquiring them.

Recent memory (with attention and praxis) is obtained in response to simple drill orders, *e. g.* "Arms upward stretch!" "Hips firm!" and by the execution of double, treble, or quadruple commands.

Recent memory also (mainly dependent upon volitional attention) by recapitulation of eight common objects which have been shown on the table, named, counted, and then covered up; by repetition of a simple sentence from dictation; and by recollection of four or five facts from a paragraph read or dictated from the humpty-dumpty book.

Past memory by various answers on events in the everyday life of the child.

In speech note the presence of echolalia, verbigeration, idioglossia, coprolalia, etc. (apart from defects of articulation recorded in the physical examination).

Orientation may be tested by questions on time, the day of the week, distance from home, etc.

The scope of the higher faculties is more difficult to determine, and at the same time is of greater importance from a diagnostic and a prognostic point of view, as most of the backward children, and some of the defective ones, respond more or less readily to the previous tests, except perhaps in the case of the most difficult ones, and of attention.

Ideation, or memory images, may be tested by naming eight birds (or other suitable objects), and extracting *seriatim* a description of them by comparison or contrast.

Association of ideas, judgment and reasoning power by descriptions obtained of the various picture postcards, leading the child on, by stepping-stones of suggestion, to associations which they may recall, allowing him to follow his own trend of thought as far as possible; further, descriptions of imaginary objects and incidents may be elicited, together with reasons for what he says. For instance, let the child imagine that he has picked up a penny or a shilling, let him describe how he would proceed, what he would buy, why so, etc. (incidentally his knowledge of counting and of coin values may be tested,

though this is rather a test of experience than of intelligence). Try to find out if he would know what to do in a specific accident, what he would use to wash with ; how he would go about more complex occupations, and so on.

Sentiment is shown by the effects of the various post-cards—ludicrous, pretty, ugly, etc.

So far as character goes, much information may be gathered from the parents' and teachers' reports ; in addition, questions on the right and wrong of various actions may elicit a distinction between moral sense and fear of punishment. Lack of inhibition of the instincts (and hence weak will-power) such as is indicated by greed, immodesty, stealing, noisiness, filthiness, etc., disorders of instinct such as unsociability, etc., the emotions, temperament and will-power may be noted partly by observation during the interview, but largely from the parents' and teachers' account of the child.

It is absolutely necessary to examine, in the same way, a very large number of average children at various ages (say seven, ten, and thirteen) in order to obtain some idea of variations in the normal, and of the most successful methods of extracting useful information. Routine medical inspection affords exceptional opportunities for doing this, without too great an expenditure of time, if each child of a series is tested under one heading only at a time. Without such experience it is impossible to recognise abnormality or to estimate its degree.

During one year's inspection of seventy-two schools, composed of 111 departments, and of a little less than 16,000 children, of whom those of the ages five, seven, ten, and thirteen, with special cases at other ages (about 6,000 in all) were medically inspected, I could not spare the time to examine the mental state of more than 171 (twenty-nine of them in great detail, as described above, eighty-six of them fairly thoroughly, and fifty-six superficially), although many of my schools are small and situated in rural districts, thus affording greater opportunities than the urban schools. In the latter it was impossible to examine other than the most obvious cases occurring in the routine age-groups, and the remaining abnormalities at other ages (except a very few specials) were necessarily neglected.

In order to obtain the best results from education, a psychological examination should, in my opinion, be made of all the

abnormal children, and for this purpose it would be wise to provide mental inspection in addition to medical inspection. Ample repayment would be found in the large addition to the number of efficient citizens which would almost certainly follow.

I am grateful to Dr. A. F. Tredgold for suggestions as to some of the methods of examination, and to Dr. T. Henry Jones (C.M.O. Surrey), for permission to publish.

TEACHER'S REPORT.

(This report will be treated confidentially.)

Name (surname first)

Age

Standard

School

Standard of School Work.

The child's capacity to be expressed by placing opposite to each subject the figure corresponding to the age of a normal child who could do the same; *e.g.*, this child's arithmetic is equivalent to that of an average child of eight, then arithmetic = 8.

Reading

Nature study

Housewifery

Writing

Physical drill

Needlework

Arithmetic

Singing

Woodwork

Composition

Bead-threading

Gardening

Recitation

Modelling

Games

Character.

(Answer "Yes" or "No.")

Attentive

Impulsive

Affectionate

Foul-mouthed

Destructive

Stolid

Obedient

Solitary

Modest

Truthful

Easily laughs
and cries

Easily led

Sociable

Sulky

Honest

Reasonable

Wet or dirty

Passionate

Well-behaved

Spiteful

Timid

Clean and neat

Violent

Mischievous

Cruel

Can the child dress itself?

Has it any peculiarities or tricks? If so, what?

Do you know of any insanity, weak-mindedness, fits, consumption, or drink among the child's relatives? If so, what and in whom?

Is the home a good one?

Does the child do home-work? If so, what? And for how many hours?

Signature,

Special Remarks.

I.

Form for Psychological Examination.

Name (surname first)

Date—Of birth

Of examination

School

Standard

Regularity

How long in attendance

Home address

„ conditions

„ work

Family tree (insanity, feeble mind, epilepsy, phthisis, alcohol, syphilis, neurosis, etc., expressed by initial).

Grandparents
Parents, uncles, etc.
First cousins
Brothers and sisters (number and order)
Note illegitimacy or relationship of parents

History of pregnancy

„ *of birth* (and parents' ages)

Personal history—

Defect or injury at birth	Malnutrition
Rash, snuffles, etc.	Rickets
Began teething	Paresis
„ walking	Chorea
„ talking	Rheumatism
„ to control bowels, etc.,	Otorrhœa
Fevers, etc.	Tonsils or adenoids
Fits	Onset of dulness

Diagnosis

Probable cause

Recommendation

Signature,

II.

Physical state.

Condition and stigmata.

Height	Hand extension
Weight	Fingers, etc.
Nutrition	Ext. eyes
Cleanliness	„ ears
Vision, R.	Nose
„ L.	Face and brow
Colour match	Lower jaw
„ name	Glands
Hearing	Skin and hair
Articulation	Limbs
Heart	Body
Circulation	Teeth
Lungs	Tongue
Rickets	Palate
Reflexes	Throat
„ organic	Mouth-breathing
Nervous tremors, etc.	Special

Cranial measurements, etc.

Summary of School Report—

Reading	Composition	Drill	Manual, etc.
Writing	Recitation	Singing	
Arithmetic	Nature	Games	

Summary of character

Manual accomplishments, etc.

III.

Psychological State.

Expression, attitude, etc.

Perception of—

Touch

Weight

Vision

Hearing

Motor response

Drawing

Reading

Writing

Co-ordination

Recent memory

Past memory

Summaries of Subsequent Examinations.

IV.

Attention

Speech

Orientation

Ideation

Association of ideas

Judgment

Reasoning power

Imagination

Sentiment

Moral sense

Instincts

Emotions

Temperament

Will-power

The Deviation of Complement in Cases of So-called Idiopathic Epilepsy. (Essay for which was awarded the Bronze Medal of the Medico-Psychological Association, 1911.) By G. H. GARNETT, M.B., Ch.B.Edin., Assistant Medical Officer, Perth District Asylum, Murthly.

THE word "epilepsy" is used to describe a group of signs and symptoms which are associated with a disease that primarily affects the nervous system. We find grouped together under this name several diseased conditions which, so far as their clinical manifestations are concerned, bear a common relationship, but differ in regard to their exciting causes.

Dr. Aldren Turner in his Morison Lectures (*Lancet*, July 16th, 1910) has divided the manifestations of epilepsy, according to the exciting cause, into the following groups: (a) The organic epilepsies, (b) the early epilepsies, (c) the late epilepsies, and

(d) idiopathic epilepsy, the last so named on account of there being no ascertainable cause found for the condition. It is the so-called idiopathic form of epilepsy alone and its exciting cause that I propose to discuss in this paper, and I shall therefore use the word "epilepsy" as indicative of idiopathic epilepsy unless otherwise stated.

Dr. Turner goes on to define epilepsy as "a chronic disease of the brain characterised by the occurrence of seizures in which interference with consciousness is an essential feature, associated either with convulsions or transient psychical phenomena occurring in persons with a hereditary neuropathic endowment, and eventually leading to a more or less permanent mental deficiency. This definition embraces the manifold symptoms usually included under the term epilepsy, such as psychical epileptic equivalents"

I do not intend to enter into the details of the convulsive and psychical elements or to discuss the predisposing causes of the disease, but as the direct or exciting cause of epileptic seizures plays an important part in the observations that I have made, a short summary of the theories which have been put forward in regard to this factor may not be out of place.

Such theories may be roughly divided into two groups—(a) toxic theories, and (b) non-toxic theories.

The following are perhaps the more important of the theories which have been advanced in support of a toxin being the direct or exciting cause of epileptic seizures.

Some years ago Magnam produced epileptic convulsions in animals by the intra-venous injection of small doses of essence of absinthe, these experiments being confirmed by Horsley, who carried out a long series of observations on similar lines.

Voison and Peron (*Archives de Neurologie*, vol. xxiv, p. 178) demonstrated certain toxic properties of the urines obtained from epileptic patients. These observers found that there was a hypotoxic condition of the urine before a seizure, and a hyper-toxic condition of the urine after a seizure.

Haig, working on the uric acid content of the urine in patients suffering from epilepsy, found that before a seizure there was a diminution in the excretion of uric acid, and attributed the fits to an excess of uric acid in the blood.

Krainsky also has drawn attention to the diminution of uric acid in the urines of patients suffering from epilepsy, but carry-

ing his researches further, concluded that the presence in the blood of carbamic acid and certain of its compounds—substances closely related to uric acid—were the direct causes of an epileptic seizure.

Binswanger (*Die Epilepsie, Wien*, 1899) has called attention to a small group of cases which he considered might have a toxæmic origin, such cases being characterised by (a) marked premonitory symptoms of a psychical nature, (b) cases in which the fits were frequent and severe, and (c) cases in which there were more or less long intervals between the seizures.

In opposition to the theories of a possibly toxic origin, we find that there are a number of observers who attribute the exciting cause of an epileptic seizure to other factors.

A. E. Russell (*Lancet*, vol. i, pp. 963, 1031, 1093) regards cerebral anæmia due to cardiac inhibition and vaso-motor influences as the direct cause of epileptic seizures.

Dr. John Turner, of Brentwood, has demonstrated intravascular clotting in the cerebral arteries of epileptics, and attributes the fits to the formation of these clots.

Brown Séquard found that a few weeks after section of the spinal cord in an animal epileptiform seizures occurred, such seizures recurring at regular intervals, and further, that mechanical stimulation would cause a seizure in the animal whose spinal cord had been severed.

Whatever the cause of the so-called idiopathic epilepsy may be, whether it is a purely functional disorder, or the result of neuro-toxins, or a combination of these causes, a recent advance in the field of serum diagnosis—the complement deviation test—has made it at least possible to investigate as to whether specific toxins and their antibodies exist in the serum of patients who are subject to the symptoms of epileptic seizures. This method of diagnosis is based upon the axiom, that whenever a toxin is introduced or forms in the mammalian body, the body attacked protects itself by the formation of an anti-substance. It is reasonable from this known fact to argue that if epilepsy is in some cases caused by toxins acting upon the nerve centres, the presence of such a toxin would lead one to expect the presence of an antitoxin in the serum of the patient.

In 1902 Gengou showed that when an anti-serum was developed by the injection of various albuminoid substances into an animal, the mixture of the substance and the anti-substance

might not only give rise to a precipitate, but might also have the power of absorbing complement or alexine. (*Studies on Immunity*, Muir). Pfeiffer, Moreschi, Freiburger, Wassermann, and others, have done a great deal of work on the phenomenon known as the deviation of complement, and as it is perhaps the most recent method of serum diagnosis yet put forward, I propose to give a short summary of the reaction.

The deviation of complement depends upon the following facts: When an antigen or toxin is mixed with its corresponding immune body or anti-toxin, a union occurs between the two. If now complement, a constituent of every fresh serum, be at the same time added, it becomes fixed and held fast by the union of antigen and immune body. Whether or no such complement fixation has taken place may be easily determined by adding to the above mixture of toxin, anti-toxin, and complement, a hæmolytic serum obtained from an animal which has been injected with red blood-corpuscles, along with the homologous red blood-corpuscles. The hæmolytic serum, which has been heated to 55° C. to destroy its complement, is unable to produce lysis of the red blood-corpuscles by itself. If then upon adding the hæmolytic serum and red blood-corpuscles to the above-mentioned mixture of toxin, anti-toxin, and complement, no hæmolysis takes place, we may say that the complement has been fixed or deviated by the union of a toxin and its specific antibody. On the other hand, if hæmolysis does occur, it is evident that some at least of the complement has not been fixed or deviated, and this free complement has immediately entered into combination with the hæmolytic serum to produce the characteristic destruction of the red blood-corpuscles known as hæmolysis.

The test is a delicate one, and since its discovery had been used as a diagnostic sign in a number of diseased conditions in which ordinary clinical methods are uncertain. Professor Wassermann was the first to apply the test in the diagnosis of syphilis, and since then it has been used in the diagnosis of other infections in which toxins and their anti-substances exist.

Whilst it is true that complement is fixed or deviated by the union of an antigen and its antibody, it has been shown that other factors must be considered when carrying out observations upon the deviation of complement. Professor Muir, of

Glasgow, has emphasised the following points regarding the causes of the disappearance of complement in a mixture: (*a*) physical and chemical means, (*b*) inhibition of complement by concentrated salt solution or certain proteins. Dr. Haswell Wilson has shown that albumen, by its power of deviating complement, could be demonstrated in solution in far greater dilutions than by any chemical method.

Observers have recently placed more value on the reaction when used as a quantitative one, that is to say by noting not only whether complement is deviated, but how much is deviated, and I have employed the latter method in carrying out the majority of my observations.

In approaching the question, therefore, of a toxin being a possible cause of epileptic seizures, I have done so under conditions which have been rendered more favourable by the discovery of such a delicate test as complement deviation, by means of which we may say that there is evidence in the individual affected of the existence of a substance which is capable of producing a specific anti-substance in such an individual, and possibly in other individuals similarly affected, although we may have no direct proof of its exact origin and nature.

It was the rapid strides in technique and the various methods of applying the reaction that have been recently made that induced me to use this test of complement fixation as a possible means of throwing light upon the causation of idiopathic epilepsy. I have mentioned a few of the theories put forward in support of the view that a toxin is the exciting cause of epileptic seizures, but so far as I am aware such theories have not been founded upon the use of so delicate a test as complement fixation.

In order to carry out observations on such lines two important factors had first to be considered (*a*) the source of antigen or toxin, and (*b*) the source of anti-substance, for the presence of both these substances is necessary in order to obtain a positive result or the fixation of complement.

The majority of workers who have employed this test have used mixtures of sera with their corresponding antisera, bacterial emulsions with the corresponding anti-bacterial substances, or extracts of certain organs with certain anti-substances as in Wassermann's reaction. In my series of

observations I have used the urines from patients suffering from epilepsy as the source of antigen, and the serum from epileptic patients as the source of anti-substance.

Urine was first used as the antigen or toxin in the complement deviation test by M. A. Bergeron in connection with tubercular infection. Lewis Bruce has used urine as the antigen in observations made in cases of mania (*Journal of Mental Science*, October, 1910). In both these observations the urine was chosen upon the supposition that if toxins were circulating in the blood they would most probably be eliminated in part by the kidneys, and under the same belief I have used the urines of epileptic patients as the antigen in my observations. I used the serum of epileptic patients as the anti-substance for the reason already stated, that if by any chance the disease was due to a specific toxin or group of toxins, there would almost certainly be some anti-body to that toxin found in the serum of those suffering from the disease.

In using the above-mentioned sources of supply of antigen and anti-body, we are probably working with toxins and anti-toxins in extremely dilute solution, but it has been proved by other observers that the success of the complement deviation test does not depend upon concentrated solutions, but is rather a very delicate method of detecting minute quantities of these substances when they are specific to one another.

Technique.

While not differing in the essentials and general principles of the reaction as used by Professor Wassermann and other observers, there are certain details in the technique employed which require description.

Specimens of urine.—The specimens of urine, which were used as sources of antigen throughout the observations, were treated in such a way before use as to reduce to a minimum any errors that might arise in carrying out the observations owing to the presence of organisms and other abnormal constituents in the urines. Accordingly, each specimen of urine before use was heated to a temperature of 70° C., in order to precipitate albumen and other substances, and then passed through a Berkefeld filter to remove organisms and substances precipitated by heat. The specimens were then kept in sterile flasks

in a cool place until ready for use. To avoid the possible complication of accidental contamination after filtration, the specimens of urine were never kept for more than twelve hours before they were required for use. Immediately before use each specimen of urine was examined for the presence of organisms, also the specific gravity and reaction were noted. In addition, the specimens were tested by the ordinary chemical methods for the presence of abnormal constituents.

Specimens of serum.—The specimens of serum, which were obtained from cases of epilepsy and used as the source of antibody throughout the observations, were taken in the following way. Blood was drawn from the patient by means of a sterile needle and syringe, the needle being passed into one of the veins of the forearm. The blood thus obtained was set aside in a sterile tube in a cool place, and the serum allowed to separate out from the clot. This serum was then removed from the tube, centrifuged to remove corpuscles, and heated at a temperature of 55° C. for one hour in order to destroy the complement which exists in all fresh sera.

Complement.—The serum from a normal rabbit was used as complement throughout my observations. The blood was collected in a sterile tube, and set aside in a cool place for twenty-four hours before use. At the end of this time the serum was pipetted off from the clot and centrifuged in order to remove corpuscles. The complement furnished by such a serum was found to be more potent in its action than the complement supplied by a serum which was obtained on the same day as it was required. Before making each set of observations the minimal hæmolytic dose (M.H.D.) of the complement to be used was tested. By the M.H.D. of complement I mean the smallest amount of complement which it would be necessary to add to a mixture containing a hæmolytic serum and .5 c.c. of a 5 per cent. suspension of homologous corpuscles in normal saline, in order that the hæmolytic serum might completely hæmolyse the corpuscles in one hour. The method employed for estimating such a dose of complement was the same as that recommended in *Muir's Studies on Immunity*, pp. 4 and 5.

Hæmolytic serum.—A hæmolytic serum was obtained from a rabbit which had been injected with washed human red blood-corpuscles. Blood from the rabbit was collected in a sterile tube, set aside in a cool place, and the serum allowed to

separate out from the clot. The serum thus obtained was centrifuged in order to free it from corpuscles and then heated to a temperature of 55° C. for one hour in order to destroy the complement present in it. The M.H.D. of such a serum was always estimated before making each set of observations on lines similar to those used for the estimation of the M.H.D. of complement (*Muir's Studies on Immunity*, pp. 4 and 5).

Indicator.—As an indicator in my observations, I used .5 c.c. of a 5 *per cent.* suspension in normal saline (.85 *per cent.*) of human red blood-corpuscles. The corpuscles were previously washed in normal saline in order to remove all traces of serum.

Observations.—These were carried out as follows: To each of a series of tubes was added .2 c.c. of a specimen of urine, plus .3 c.c. of a specimen of serum, plus a certain amount of complement. (I shall refer to the actual amounts of complement that were used when I give the details of the various groups of observations.) The above mixture of urine, containing a supposed antigen, serum, containing a supposed antibody, and complement, was placed in an incubator for one and a half hours at 37° C. in order to allow union to take place between antigen, antibody, and complement.

At the end of one and a half hours' incubation the tubes were removed from the incubator, and to each tube there was added .5 c.c. of a 5 *per cent.* suspension in normal saline of human red blood-corpuscles, plus slightly more than the M.H.D. of a hæmolytic serum. The tubes were then returned to the incubator at 37° C. for one and a half hours, after which time they were removed and the results noted. The tubes were then set aside at room temperature for about twelve hours and the results again noted.

Control observations.—In each series of observations there were included control tubes containing—(1) antigen without antibody, (2) antibody without antigen, (3) antigen and antibody without complement, and (4) as antigen, urines from cases other than epileptics. These control observations were necessary in order to avoid certain errors. Thus, a specimen of urine which was being used as the antigen in an observation might, owing to the presence of some abnormal constituent, have deviated complement without the presence of anti-body in the mixture. In a similar way the serum which was used as the antibody might have deviated complement without the

presence of antigen in the mixture. A control tube, containing antigen and antibody but no complement, was included in order to determine whether complement, normally present in all sera, had been completely destroyed by heating to 55° C.

We may summarise the whole procedure thus: Antigen + antibody + complement, incubation for one and a half hours at 37° C.; the addition of hæmolytic serum + .5 c.c. of a 5 *per cent.* suspension of human red blood-corpuscles, incubation for one and a half hours at 37° C. Results noted immediately after removal from incubator and again twelve hours later.

Results.—No hæmolysis in the corpuscles which had been added denoted a positive result or the deviation of complement, *i.e.*, the antigen had combined with its antibody and fixed or deviated the complement which had been added to the mixture so that there was not sufficient free complement in the mixture to enable the hæmolytic serum to cause lysis of the added corpuscles.

On the other hand, hæmolysis in the corpuscles which had been added denoted a negative result, *i.e.*, there had been no union between the antigen and its antibody, and therefore no complement had been deviated; free complement therefore existed in the mixture, the presence of this free complement enabling the hæmolytic serum to produce lysis of the red blood-corpuscles.

Much difficulty has been caused in the study of immunity by the employment of various names having a more or less synonymous meaning, and therefore it might be as well to point out in what particular sense I use the terms antigen and antibody throughout this paper. The word antigen is used to denote a substance which we may compare to a toxin, and which has given rise to, or stimulated in the individual affected, the formation of a specific anti-substance which I shall refer to as the antibody, the union of these two substances having the property of fixing or deviating complement which had been added to a mixture containing an antigen and its specific antibody.

Observations.

All the work in connection with the following groups of observations has been carried out in an asylum laboratory, and

therefore the specimens of serum and urine—with the exception of certain control urines—which were used throughout the observations, were obtained from epileptic patients who were certified lunatics, and who were suffering from some form of mental derangement as the result of, or in association with, epilepsy. In the course of the observations, specimens of urine from twenty-three cases of epilepsy, and specimens of serum from eleven cases of epilepsy, were used as sources of antigen and antibody respectively.

All the above epileptic patients were subject to fits, the number and frequency of which varied in each case.

The specimens of urine used for control observations were obtained from the following sources: (1) Members of the asylum staff; (2) cases of mania; (3) cases of melancholia; (4) cases of general paralysis; and (5) imbeciles and idiots.

The observations with the results that were obtained, may be divided into four groups, which I now propose to consider in detail, and as I have already described generally the technique employed throughout my observations, in dealing with the following groups I shall only mention such facts in regard to the technique as may have a direct bearing upon the results which are recorded.

TABLE I.—*First Series of Observations.*

Antibody.	Antigen.	Complement.	Results.	
			Positive.	Negative.
Serum from Epileptic A	Urine from 15 epileptic patients	1 M.H.D.	12 = 80 per cent.	3 = 20 per cent.
Ditto . . .	Urine from 15 control persons not epileptic	1 M.H.D.	2 = 13·3 per cent.	13 = 86·7 per cent.

Antibody.—Throughout this series of observations the antibody employed was the serum of a male epileptic patient, A—, who was partially demented and who suffered from numerous epileptic seizures averaging three and four every twenty-four hours.

Antigens.—The sources of antigens were as follows: (1) The urines from fifteen patients suffering from epilepsy, and

(2) control urines, from (a) twelve members of the asylum staff, and (b) three cases of confusional mania.

Complement.—1 M.H.D. of complement was used in each observation of this series.

Example of Technique.—Series 1.

Tube.	Antigen.	Antibody.	Comple- ment.	Hæm. serum.	5 per cent. suspension R.B.Cs.	Result.
1	2 c.c. urine ep. 1	3 c.c. serum ep. A.	1 M.H.D.	04 c.c.	5 c.c.	No hæm.
2	" " 2	" "	"	"	"	Ditto
3	" " 3	" "	"	"	"	"
4	2 c.c. urine control 1	" "	"	"	"	Hæm.
5	" " 2	" "	"	"	"	"
6	" " 3	" "	"	"	"	"

The M.H.D. of complement was 01 c.c.

The antigens, antibody, and hæmolytic serum were all controlled as stated on p. 683 of this paper. (See paragraph on control observations p. 683.)

The double lines indicate incubation periods of one and a half hours each.

Results.—The results obtained were sufficiently striking; out of the 15 urines from epileptics 12, or 80 *per cent.*, gave positive results—that is to say the complement was deviated and no hæmolysis occurred—and 3, or 20 *per cent.*, gave negative results—the complement was not deviated and hæmolysis occurred.

Of the 15 controls only 2, or 13·3 *per cent.*, gave positive results, while 13, or 86·7 *per cent.*, were negative.

The 2 control urines, which deviated complement, were obtained from members of the asylum staff, and contained no abnormal constituent; but I found, on making further observations, that 1 M.H.D. of complement was occasionally deviated by the urines of apparently healthy persons, and therefore in the next series of observations I increased the quantities of complement.

TABLE II.—*Second Series of Observations.*

Antibody.	Antigens.	Complement.			Results.					
					Positive tubes.			Negative tubes.		
		Tube 1.	Tube 2.	Tube 3.	1	2	3	1	2	3
Serum from Epileptic A— Ditto	Urine from 18 epileptic patients	1 M.H.D.	2 M.H.Ds.	4 M.H.Ds.	18	15	8	0	3	10
	Urine from 18 control persons <i>not</i> epileptics	"	"	"	6	3	1	12	15	17

Antibody.—The source of antibody in this series of observations was the same as that in Series 1, namely the serum of a male epileptic patient A—.

Antigens.—These were (1) the urines from 18 individuals, each the subject of epilepsy; and (2) control urines from (a) 4 cases of manic-depressive insanity; (b) 4 cases of confusional mania; (c) 2 cases of imbecility; and (d) 8 members of the asylum staff.

Complement.—Varying doses of complement, namely 1 M.H.D., 2 M.H.Ds., and 4 M.H.Ds. were used throughout these observations with each specimen of urine tested.

Example of Technique.—Series 2.

Tube.	Antigen.	Antibody.	Complement.	Hæm. serum.	5 per cent. suspension R.B.Cs.	Result.
1	2 c.c. urine ep. 4	3 c.c. serum ep. A	02 c.c.	03 c.c.	5 c.c.	No hæm.
2	" " 4	" " A	04 "	" "	" "	Ditto
3	" " 4	" " A	08 "	" "	" "	"
4	2 c.c. urine control 4	" " A	02 "	" "	" "	"
5	" " 4	" " A	04 "	" "	" "	Hæm.
6	" " 4	" " A	08 "	" "	" "	"

The M.H.D. of complement was 02 c.c.

The antigens, antibody, and hæmolytic serum were all controlled as described on p. 683 of this paper.

The double lines indicate an incubation period of one and a half hours each.

Results.—A reference to Table II shows the following results:

The urines from all the epileptic patients—18 in number—deviated 1 M.H.D. of complement, the urines of 15 deviated 2 M.H.Ds., while the urines of 8 deviated 4 M.H.Ds.

Of the 18 control urines, 6 deviated 1 M.H.D., 3 deviated 2 M.H.Ds., and 1 deviated 4 M.H.Ds. of complement.

These results of complement fixation by the urines from epileptic patients are not very striking when looked at by themselves—no less than 55 *per cent.* failed to deviate 4 M.H.Ds. of complement—but when compared with the results obtained with the control urines, there can be no doubt that the urines of epileptics when mixed with the serum of epileptics have a greater power of complement deviation than the urines of non-epileptic persons when also mixed with the serum of epileptics.

The results are marked when stated in comparative form. The urines of epileptics, plus 1 M.H.D. of complement, gave 100 *per cent.* of positive results, whereas the urines of the control persons, plus 1 M.H.D. of complement, gave 33 *per cent.* of positive results. With 2 M.H.Ds. of complement the urines of epileptics gave 83 *per cent.* of positive results, while the control urines gave only 16 *per cent.* of positive results. Lastly, with 4 M.H.Ds. of complement, the maximum amount of complement used in this series, the urines of epileptics gave 44 *per cent.* of positive results, and the controls only 5 *per cent.*

In looking at the above results, two factors must be considered. The first is that I have ample evidence that the toxin or substance in the urine of an epileptic, which has the power of deviating complement when mixed with the serum of an epileptic, varies greatly on different days, and as the urines from the epileptic patients were taken whenever it was convenient to carry out observations, it is more than probable that some of these urines contained a minus quantity of the toxin or deviating substance while others contained a plus quantity. (This factor is illustrated in Table IV.)

Secondly, the positive results obtained with some of the control urines may have been “group reactions,” several of the controls being insane persons, and there is a known close affinity between the disease known as epilepsy and some of the diseases classed under insanity. (Prof. Muir, of Glasgow, in

the *Lancet*, November 5th, 1910, has recently drawn attention to the occurrence of a so-called "group reaction" in certain cases of trypanosome and other protozoal infections when using Wassermann's test for syphilis.)

TABLE III.—*Third Series of Observations.*

Antibody.	Antigens.	No. of observations.	Complement.		Results.			
					Positive tubes.		Negative tubes.	
			Tube 1.	Tube 2.	1.	2.	1.	2.
Serum from 10 different epileptics Ditto.	Urine from 23 different epileptics	139	2 M.H.Ds.	4 M.H.Ds.	93	43	46	96
	Urine from 41 control persons <i>not</i> epileptics	140	"	"	20	—	120	140

As the results of the observations of Series 1 and 2 were largely confirmatory, I made a third series of observations which are shown in the above Table III. This series of observations was more extensive than either Series 1 or 2, for I not only carried out a greater number of observations, but the antigen and antibody were obtained from a larger number of epileptic patients—10 supplied specimens of serum as antibody, and 23 supplied specimens of urine as antigen.

Antibody.—The antibodies were supplied by the sera of 10 different epileptic patients.

Antigens.—These were supplied by (1) 23 different epileptic patients, and (2) 41 persons who were not epileptic.

Complement.—2 M.H.Ds. and 4 M.H.Ds. were used with each urine tested.

In addition to the above ten specimens of serum which were used as sources of antibody in this series of observations, I used an eleventh specimen—serum K. This serum was obtained from a female epileptic who suffered from frequent fits and occasional attacks of epileptic mania. The observations made with serum K are not included in the results of this series, because I found that this serum caused the deviation of 2 and

4 M.H.Ds. of complement without the presence of an antigen in the mixture. Such complement fixation did not occur with any of the other ten sera that were used as sources of antibody and the results are therefore of interest, especially as specimens of urine obtained from the patient who supplied serum K failed to cause the deviation of 2 and 4 M.H.Ds. of complement when tested with nine different sera from epileptics upon nine different occasions, and only once did complement deviation occur when a specimen of this patient's urine was used as antigen, and this specimen was obtained after the patient had been in a "status epilepticus."

Example of Technique.—Series 3.

Tube.	Antigen.	Antibody.	Comple- ment.	Hæm. serum.	5 per cent. suspension R.B.Cs.	Result.
1	2 c.c. urine ep. 1	3 c.c. serum ep. A.	04 c.c.	02 c.c.	5 c.c.	No hæm.
2	" " 1	" "	08 "	" "	" "	Ditto.
3	" " 2	" "	04 "	" "	" "	"
4	" " 2	" "	08 "	" "	" "	"
5	2 c.c. urine control 1	" "	04 "	" "	" "	Hæm.
6	" " 1	" "	08 "	" "	" "	"
7	2 c.c. urine ep. 1	" " B.	04 "	" "	" "	No hæm.
8	" " 1	" "	08 "	" "	" "	Ditto.
9	" " 2	" "	04 "	" "	" "	Hæm.
10	" " 2	" "	08 "	" "	" "	"
11	2 c.c. urine control 20	" "	04 "	" "	" "	"
12	" " 20	" "	08 "	" "	" "	"

The M.H.D. of complement was 02 c.c.

The antigens, antibodies, and hæmolytic serum were all controlled as in the previous observations.

The double lines indicate incubation periods of one and a half hours each.

Results.—With the urines of epileptic patients 139 observations were made; in 93 of these 2 M.H.Ds. of complement were deviated, and in 43 4 M.H.Ds. of complement were deviated.

With the urines of control persons 140 observations were made; of these 20 deviated 2 M.H.Ds. of complement and none deviated 4 M.H.Ds. of complement.

In this series of observations, as in those of Series 2, Table

II, the results were not striking when regarded individually, but they are marked when regarded comparatively. For, whereas the total positive results with the urines of epileptics were over 90 *per cent.*, the total positive results with the control urines were only 14.2 *per cent.*

In this series of observations, also, allowance must be made for the same factors noted under Series 2, namely, the fact that the urines of epileptics vary from day to day in their power of deviating complement, and also the fact that certain of the controls in this series were insane and imbecile persons—conditions which are often associated with, and allied to, epilepsy—and therefore the urines of these persons would be quite likely to give “group reactions.”

Table IV shows the results in tabular form of the actions of specimens of serum obtained from 10 epileptic patients upon the urines from 23 epileptic patients. The table is designed to show that the specimens of urine from the same patient apparently vary at different dates in the amount of toxin or deviating substance they contain.

TABLE IV.

	A	B	C	D	E	F	G	H	I	J
1	P	P	P	P	P	P	P	—	P	P
2	P	—	—	—	N	P	N	—	P	N
3	P	P	P	P	P	—	P	—	N	P
4	P	P	P	P	P	—	—	P	P	N
5	—	P	—	—	P	N	—	P	N	N
6	N	P	N	P	N	P	—	—	N	N
7	P	—	—	P	P	P	—	P	P	N
8	—	—	—	P	P	N	—	—	P	P
9	—	—	—	P	P	N	—	—	N	P
10	—	—	—	P	P	—	—	—	P	P
11	N	—	—	P	N	—	—	—	N	P
12	—	—	—	—	P	—	—	N	N	P
13	P	—	—	—	—	N	P	—	N	N
14	P	—	—	—	—	—	P	—	N	N
15	—	—	—	—	—	N	P	—	N	N
16	P	—	—	P	P	P	—	P	P	P
17	P	P	—	P	P	P	N	—	N	P
18	P	P	—	P	—	—	—	—	N	P
19	P	—	—	P	—	P	—	—	P	P
20	N	N	—	P	—	N	—	N	N	N
21	P	N	—	P	—	—	P	—	N	P
22	P	N	—	P	—	N	—	N	P	P
23	P	N	—	—	N	—	—	—	P	N

The letters A, B, C, etc., refer each to the serum of a different epileptic patient, each serum being used as antibody and tested with urines from a number of epileptic patients represented on the left-hand side of the table by the figures 1, 2, 3, etc.

The urines from these epileptic patients 1, 2, 3, etc., were taken upon ten different days, and tested with the serum of one of the epileptic patients A, B, C, etc., so that the observations made with A's serum with the urines of epileptics 1, 2, 3, etc., were made with entirely different samples of urine from those tested with the sera of B, C, D, etc.

Positive results are indicated by P, negative results by N, while a stroke denotes that sample of urine was not tested against that particular serum.

In the total results it will be seen that out of 139 observations 93 were positive and 46 were negative.

The variation in complement deviation which occurred with samples of urine obtained from one particular patient on different dates is well shown. The urine of epileptic No. 6, for instance, gave alternate negative and positive results on six consecutive occasions when tested with sera A, B, C, D, E, and F; the urine of epileptic No. 17 gave five positive results on five consecutive occasions, then two negative results, and lastly one positive. It will be seen that in no one case were the results entirely negative, and that a single positive result was recorded in only two instances, namely in the case of patients Nos. 15 and 20.

Fourth Series of Observations.

This series of observations was made as a control series, in order to test the power of other sera than the sera of epileptics to deviate complement when mixed with the urines of epileptics.

These observations and their results are shown in Table V.

Antibody.—The antibody was supplied from the sera of two cases of insanity, one a case of confusional mania and the other a case of manic-depressive insanity.

Antigens.—The antigens were supplied by the urines of twenty epileptic patients. These urines had been used in the observations of Series 3 and given positive results.

TABLE V.

Antibody.	Antigens.	No. of observations.	Complement.		Results.			
					Positive tubes.		Negative tubes.	
			Tube 1.	Tube 2.	1.	2.	1.	2.
Serum from a case of confusional mania	Urine from ten epileptics	20	2 M.H.Ds.	4 M.H.Ds.	—	—	10	10
Serum from a case of manic-depressive insanity	"	20	"	"	—	—	10	10

Complement. — 2 M.H.Ds. and 4 M.H.Ds. were used throughout the observations with each specimen of urine tested.

Example of Technique.—Series 4.

Tube.	Antigen.	Antibody.	Complement.	Hæm. serum.	5 per cent. suspension R.B.Cs.	Result.
1	2 c.c. urine ep. 10	3 c.c. serum (confus. mania)	02 c.c.	03 c.c.	5 c.c.	Hæm.
2	" "	" "	04 c.c.	"	"	"
3	" "	3 c.c. serum (manic-depress.)	02 c.c.	"	"	"
4	" "	" "	04 c.c.	"	"	"
5	" control 6	3 c.c. serum (confus. mania)	02 c.c.	"	"	No. Hæm.
6	" "	" "	04 c.c.	"	"	Ditto
7	" control 8	3 c.c. serum (manic-depress.)	02 c.c.	"	"	"
8	" "	" "	04 c.c.	"	"	"

The M.H.D. of complement was 01 c.c.

The antigens, antibodies, and hæmolytic serum were controlled as in previous observations.

The double lines indicate incubation periods of one and a half hours each. Control urines 6 and 8 were obtained from a case of confusional mania and a case of manic-depressive insanity respectively.

Results.—The results obtained were uniform and entirely negative; in no observation did the serum from the case of confusional mania or the serum from the case of manic-depressive insanity deviate any complement when mixed with the urines of epileptic patients.

Conclusions.

As the result of these observations made upon the complement deviating power of the urines of epileptics when mixed in certain proportion with the serum of sufferers from epilepsy, I am led to the following conclusions:

(1) That the serum of persons the subjects of epilepsy contains some substance of the nature of a specific antibody.

(2) That the urines of persons suffering from epilepsy contain, very generally, a toxin or substance specific to the antibody contained in the serum.

(3) That the serum of persons who are not epileptic does not contain an antibody specific to the toxin which is generally present in the urines of epileptic patients.

(4) That the urines of some sane non-epileptic persons and some persons the subjects of insanity but not epileptic contain a toxin or substance, which when mixed with the serum of an epileptic is capable of deviating 1 and 2 M.H.Ds. of complement, but very rarely 4 M.H.Ds.—throughout the observations only 5 *per cent.* did so.

(5) That the urines of epileptic patients when mixed in certain proportions with the serum of patients also the subjects of epilepsy are capable in a much larger proportion of deviating 4 M.H.Ds. of complement. In the second series of observations 44 *per cent.* did so, and in the third series of observations 30 *per cent.* did so.

(6) The results are only striking when regarded comparatively, that is to say, when the positive results obtained with the epileptic patients are compared with the positive results obtained with non-epileptic persons. This method of observation, therefore, is of little value as a diagnostic of the disease known as epilepsy.

(7) The results of these observations are also of practical interest, because if further observations with improved technique and knowledge prove that some forms of epilepsy are of

toxic origin, it should be possible to extract the toxins from the urines of epileptic persons and to use the toxins as a specific vaccine in the treatment of the disease.

Occasional Notes.

The Annual Meeting.

After the lapse of seventeen years our Association has again held its Annual Meeting in Dublin.

There was much to remind members of the former meeting—an able and zealous President, scientific contributions of great importance and interest, and charming hospitality.

Dr. Dawson's Presidential Address, on a subject so judiciously selected and dealt with, his dignified and courteous conduct in the chair, and the enthusiastic support which he received from his fellow-workers in the cause of the insane, justified the confidence with which his friends had predicted for him a distinguished and fruitful occupancy of the office of Inspector of Lunatic Asylums in Ireland. We cordially renew our congratulations to him, and to those to whose welfare he will devote his life work.

Great advances have been made by our Association since 1894, and mainly on the lines which had the approval of our then President, the late Dr. Conolly Norman, to whose memory appreciative and affectionate references were made and whose loss is still so keenly felt.

The meeting extended over three days, and there was renewed evidence of the great amount of time which is devoted by the various committees to the work of the Association.

Much has been accomplished during the past year, as indicated by the several reports. The Sub-Committee on Post-Graduate Teaching and Diplomas in Psychiatry is to be congratulated on the result of its efforts—a result which must be very gratifying to those who have done so much to ensure it.

The Association is under a special obligation to the Chairman of the Housing Committee, who is also Chairman of the National Committee for Great Britain and Ireland *re* the

Causation of Insanity. The reports presented by these two committees show how well-placed is the Association's confidence in him.

The report of the Committee on the Medical Inspection of School Children is a document of great interest at the present time, when we are deeply concerned not only with the treatment of the mentally defective, but also with devising measures for the prevention of insanity.

A warm tribute is paid to the work which is being accomplished at Darenth, and the report states that if this beneficial work were more generally known, "much scepticism and hopelessness now shown as to any possible good being done by special institutions would be swept away." Knowing the composition of this Committee and the zeal and ability with which its Chairman devotes himself to any work he undertakes we expect very helpful results from its deliberations.

Last January we extended a welcome to communications on the subject with which this committee deals, and we are glad now to publish a paper "On Mental Inspection in Schools."

A record of the transactions of the Annual Meeting appears in the present number of the Journal, and our readers will, we are confident, agree with us as to the value of the scientific contributions.

Professor Shaw Bolton's "Observations on the Morbid Histology of General Paralysis" are based on an investigation which he has carried out with characteristic thoroughness, and we hope that Dr. Colin MacDowall's and Dr. Sewell's painstaking research will eventually have an ample reward.

The papers read by Dr. Collins and Dr. Mapother show what good use they have made of the wealth of clinical material they are so fortunate as to have under their observation.

Dr. Drapes, in a paper which is a reflex of his cultured mind, makes a notable contribution to the elucidation of a subject of perennial interest. Very sincere expressions of pleasure were evoked by the satisfactory evidence he gave of his convalescence.

Psycho-therapy has an able advocate in Dr. William Graham, and his paper indicates not only its great value in his practice, but also the commendable discrimination he has shown in his application of its various methods. Unhappily, elsewhere some

of those who have adopted psycho-analysis as a therapeutic measure have provoked their critics to apply to it the term "subterranean psychology."

Dr. Leeper's paper on "Hereditary Insanity" is the result of special experience, and he brings a weighty indictment against the administration of the Poor Law in Ireland.

Several papers have appeared in recent numbers of this Journal on the prevention of insanity, and we are glad that this subject was discussed at the Annual Meeting. We agree with Dr. Leeper as to the necessity for special legislation, and at the same time we appreciate the difficulties which must attend the drafting of a bill on such an intricate subject. There are those who argue that the medical profession cannot yet give sufficiently definite answers to the questions which our legislators would feel bound to ask, and that therefore this subject is not ripe for legislation.

We must admit that our knowledge is far from complete, but much valuable work has been accomplished both in the investigation of the causation of insanity and in the treatment of those who are mentally defective; and we maintain that helpful measures could be enacted on the basis of our present information and experience. In this connection we welcome the optimistic view which our President expressed in the discussion on Dr. Leeper's paper.

The members of our Association, by disseminating the knowledge they have acquired, should be able to hasten legislation, and we earnestly hope that the urgent demand which this subject makes on our attention will stimulate us to more determined and vigorous action in the year upon which we have now entered.

Sir Thomas S. Clouston.

Sir Thomas S. Clouston has received an honour, which will give unalloyed satisfaction to every member of the Medico-Psychological Association, a satisfaction arising not only from their individual liking and admiration for a fellow-member, who has thoroughly deserved the honour, but from the knowledge that he is a typical representative of the highest and best development of alienist work.

Sir Thomas S. Clouston has distinguished himself not only as a successful physician in a specialty necessitating generalised specialism, but as the highly successful administrator and developer of a most important institution. He has achieved a high reputation as a teacher in the Edinburgh University, while his scientific work and literary productions have placed him in the forefront of European alienists. On a smaller stage he has shown equal utility and energy in his devotion to the interests and welfare of the Medico-Psychological Association, and in this he has earned not only the gratitude but the esteem and affection of his fellow-workers.

The unbounded energy, the varied intellectual acquirements and the personal qualifications necessary to successful achievement in these widely differing areas of effort would have gained, long ere this, even more distinguished honours in almost any other department of public or social service.

That this inequality in the distribution of honours was in the way of being redressed, and that the present occasion was an evidence of this, would be satisfactory to believe.

Sir Thomas Clouston has so well earned his distinction on his personal merits that such a hope cannot be entertained, and no feelings of pride of specialty are mingled with our sincere and hearty congratulations.

H. R.

Part II.—Reviews and Notices.

Unsoundness of Mind. By T. S. CLOUSTON, M.D., L.L.D., F.R.S.E.

This is a quarto volume of thirty-seven chapters distributed over three hundred and fifty pages and dealing with an enormous number of subjects, including the anatomy, physiology, histology and pathology of the brain, psychology, the ætiology, classification, diagnosis and treatment of mental disease, education, mental hygiene and other kindred topics.

The author gives us to understand in the preface that the book is intended to educate the intelligent public in matters pertaining to mental disease, but one is inclined to consider the work as rather too comprehensive and too technical for such readers. Indeed, it would be rather a good initiation into psychiatry for the advanced medical student; and even asylum medical officers may pick up not a few crumbs of interesting information by its perusal. It is true that the work contains much that the general public ought to know respecting

the nature, frequency and causation of mental disorder ; but it also enters into purely technical discussions of subjects still under dispute among *savants*, and here and there the author pronounces dogmatically respecting unaccepted doctrines. The ætiological relationship between general paralysis and the *Bacillus paralyticus*, for example, is accepted without reserve.

Dr. Clouston has some difficulty in relinquishing the classification of mental disease based upon the ages of his patients, he does not appear to have quite grasped the meaning of the word "negativism" and he complains that no author, Kræpelin or other, has yet published the percentage of recoveries from dementia præcox. Notwithstanding, he is beginning to recognise this disease.

Dr. Maudsley's hospital scheme for the treatment of early cases of mental disease in the County of London is regarded with favour. Nevertheless, our shrewd old physician is wise enough to remark : "I do not say that those symptoms are always so distinct in their character or that the indications they give are so absolute that we can tell whether they are a real prelude to mental unsoundness or are only passing nervous disturbances ; and still less confidently do I say that, even if we recognise them as preludes to mental attacks, we should, by treatment, be always able to ward off the danger they point to."

The mental history of the eighty-three families of the Orkney village and several other observations that we have not seen published elsewhere are of very considerable interest. Indeed, it is manifest that a book from Dr. Clouston's pen is throughout very interesting to read. The physician of wide experience and sound judgment is evident from beginning to end, and we congratulate the author on this excellent addition to his already voluminous output.

W. H. B. S.

The World of Dreams. By HAVELOCK ELLIS. London : Constable. 1911. Large 8vo, pp. 288.

The author, in his introduction, sets out with the statement that his work belongs mainly to the introspective group of dream studies, based principally on his own dream experiences and in a much less degree on those of intimate friends. He concerns himself with the problems of normal dreaming rather than with the pathologic.

He fully recognises that in dreams our "waking" consciousness is observing our dream consciousness, and recognises the difficulty arising from the possible distortion of the facts in this process.

He does not, however, accept the theory that the dream we remember is a waking thought, and that "we do not remember our dreams, but only the reconstruction of them effected at the moment of waking," but his arguments on this head are not very convincing.

He is inclined to say "that there is always a kind of gap between sleeping consciousness and waking consciousness, the change from the one to the other seeming to be effected by a slight shock."

If this is so it should be present in all cases, and be more pronounced in the most vivid dream states ; but is it not a fact that in the most vivid dreams the transition often occurs without shock, with the

gradual return to activity of the sensory perceptions that had been inactive in the dreaming state?

The author further expresses the opinion that at whatever stage a dream is finally constituted, "we are not entitled to believe that any part of its constitution falls outside the frontiers of sleep," but is it not possible to put it the other way, and assert that it is not outside the frontiers of waking consciousness? This, moreover, would not seem to necessitate the loss of any part of their significance or interest; it is mainly a question of point of view. To him who regards dreaming as a phenomenon within the bounds of ordinary scientific knowledge they would still remain as interesting, although they might indeed lose some of the glamour that attends on dreams regarded as one of the roads into the infinite—a road that may lead us at least to the heart of the infinite. This latter point of view, to which the author is inclined to lean, has received some rough handling from the well-authenticated reports of those who, having dreams of wonderful insight, invention, etc., have written down the dream in the night, to find in the morning light that the wonderful revelation was merely some absurd or meaningless phrase.

Space does not admit of a full description of all the questions raised on this diffuse subject. It is sufficient to say that Mr. Havelock Ellis has written a valuable book, which will be read with interest by everyone to whom dreaming is a subject of study. That it is written in a clear manner, and in excellent style goes without saying with the author's name appended. The book, too, bears on every page the evidence of the author's wide reading and varied knowledge, which makes it a well of information, and renders its perusal a real literary pleasure.

H. R.

The Clinical Position of "Fear Psychoses" [Die Klinische Stellung der Angstpsychose]. By Dr. EDM. FORSTER.

This book is devoted to the study of two propositions:

- (1) Is there such a thing as the psychosis of fear *sui generis*?
- (2) Are insane manifestations of fear only phases of other mental diseases?

The sensation of "fear," which is difficult to define, represents a complicated series of conceptions which are not expressed in words. It is possible to trace back and analyse these conceptions and discover their psychopathic constitution. This the author has laboriously and carefully done, with good results.

After a long historical review of the literature on the subject, Dr. Forster gives detailed histories, descriptions and illustrative conversations in a number of cases which came under his observation during a period of five years. It is common to all these cases that the mental disorder begins with a more or less acute condition of fear which later develops in one or another direction. They are divided into eleven groups, as follows:

- (1) Cases in which subjective incompetency predominates,
- (2) Melancholia with symptoms of fear,

- (3) Cases in which fear of punishment is manifested.
- (4) Melancholics with symptoms of fear resulting in complicated psychoses.
- (5) Cases in which conceptions producing fear are undoubtedly the predominating symptoms.
- (6) Cases in which conceptions producing fear are accompanied by hallucinations.
- (7) Cases with motor symptoms which can eventually be traced to psycho-motor aphraxia.
- (8) Cases in which symptomatological fear is most prominent.
- (9) Cases of organic psychoses with fear.
- (10) A reflex condition of fear.
- (11) Neurasthenia with emotional fear.

At the end of each group a *resumé* of the cases precedes the author's observations on the whole, and in the last chapter of the book his conclusions are set forth.

He is of opinion that fear, or the symptoms which result in fear, cannot of themselves be classified as a mental disease. The conceptions which give rise to fear are of the greatest possible variety, and although they form a common symptom of several mental diseases, it would be impracticable to classify these on such a basis.

It is, however, useful to distinguish between "fear and melancholia" and the true melancholia of Wernicke. After a study of this book, it is easy to comprehend the mental process of the evolution from fear to agitation. The moderate form of fear remains within a prescribed circle of conceptions, and may be described as anxiety (*Sorge*). The exaggerated form of fear breaks through this circle and manifests itself in agitation.

HAMILTON C. MARR.

Mental Mechanisms. By WILLIAM A. WHITE. New York. 1911.
Pp. 151 + vii. Price \$ 2.

This book, the most recent issue of the *Nervous and Mental Disease Monograph Series*, is a presentation of certain modern standpoints in normal and abnormal psychology, for the most part those developed in the writings of Freud and Jung.

It "does not pretend to an exhaustive setting forth of all the principles underlying psychopathology, but only to an explanation and emphasis of certain fundamentals which appear absolutely essential to an understanding of the problems of present-day psychiatry." The plan upon which the book is written is, indeed, somewhat un-systematic, and the connection between its constituent parts is not made very clear to the reader. This is no doubt ascribable, however, to the method of approach employed, and the book should nevertheless fulfil a very useful purpose in introducing English readers to conceptions which are acquiring a rapidly increasing recognition in modern psychology.

As a minor criticism it may be mentioned that the account of Freud's views on p. 80, though true of his earlier work, is certainly an incorrect statement of his present-day standpoint. He no longer ascribes the

psycho-neuroses to psychic traumata experienced in infancy, but to a failure in the normal inter-developments of the primitive instincts. The conception of psychic trauma has been replaced by the far more fertile one of "mental conflict."

There is a chapter on "The Psychological Approach to the Problem of Art" which is interesting and suggestive, and the book concludes with a general discussion of the part which psychology and psychopathology should play in the field of preventive medicine.

BERNARD HART.

Part III.—Epitome of Current Literature.

1. Physiological Psychology.

The Problem of Affective Memory [*La Question de la "Mémoire Affective"*]. (*Arch. de Psych. Feb., 1911.*) Claparède.

Can the emotions and feelings become objects of memory? This question has been hotly debated since it was first raised by James, who answered it in the negative. When we think of an old emotion, said James, it is not the *memory* of the emotion that arises in consciousness, it is the *actual* emotion, accompanied by its characteristic organic irradiations. Titchener, Höfding, and others have followed James. On the other hand Ribot has repeatedly and vigorously maintained that there cannot be a shadow of a doubt about the reality of "affective memory," and he has been followed by Pillon, Dugas, Paulhan, Baldwin, and others, all arguing that there can be affective images just as there are visual images. Now Professor Claparède takes up the question in a searching and penetrative manner, not so much to disprove the existence of a memory of this kind, as to show that the problem is really much more complex than has usually been supposed, and that it has not always been clearly grasped by those who have discussed it. The problem itself is really unprofitable to discuss, but the misunderstandings raised by its discussion are important.

The chief error of Ribot and others, in Claparède's opinion, is the failure to realise that when there are actual physical feelings of emotion we cannot be concerned with the mere *representation* of an emotion; we have its actual *presence*. There has been a failure to establish a precise criterion of memory, and there has been a failure to understand James's theory of the emotions. These two points are discussed in detail, and Claparède concludes that the complexity of the question lies in the fact that the revival of an emotion involves two distinct processes—the revival of the cardio-vascular organic phenomena and the consciousness of these organic modifications. Until the relationships of these two processes are understood the question of the "affective memory" can only be discussed in an atmosphere of confusion.

HAVELOCK ELLIS.

The Theory of Sexual Fetichism and Anti-Fetichism [Ueber Horror Sexualis Partialis]. (Neur. Cbl., May 16th, 1911.) Hirschfeld, M.

When some special personal feature or associated object attains an exaggerated or even exclusive power of sexual attraction it is commonly called a "fetish." Hirschfeld here proposes that in the reverse case—when some special feature or associated object arouses sexual antipathy, or partial sexual horror—it should be termed an "anti-fetich." He records in some detail eleven cases of this anomaly, in both men and women. In one case, a medical man, there is a special aversion to the female breasts, and he is unable to percuss and auscultate a woman except at the back. Again, a lady has from childhood felt a special repulsion to the full masculine beard. A man, a lady's tailor, feels repulsion to nausea at the sight of the flesh of persons of either sex, even of the gloveless hand. In another man the same feeling is confined to the sight of a woman's foot. A lady detests men who carry sticks, and another, men in uniform. The common characteristic of all these cases, the author believes, is that while in sexual fetichism we have a partial sexual attraction, we see here a partial sexual aversion.

With regard to the explanation of such cases, Hirschfeld differs entirely from those who, following Binet, regard an accidental association in early life as the determining cause. He admits that the aversion tends to appear at an early period, but following one or two authors who have put forward the same view, though usually in a more tentative way, he regards the antipathetic object as the symbol of a fundamental individual tendency, and therefore rationally and not accidentally caused. Thus the lady who detests beards has herself some masculine traits, and only admires men who combine tenderness and refinement with intellectual superiority. The repulsion for uniforms was associated with a dislike for routine generally, and an admiration for freedom and naturalness. Hirschfeld admits that in some cases it is difficult to find a significance in the fetich and the anti-fetich, but considers that on the whole it is a really significant symbol of a psychic disposition.

Incidentally, the recent contention of Ziehen, that the contents of sexual anomalies are unimportant in tracing the ætiology, is effectively criticised.

HAVELOCK ELLIS.

2. Ætiology of Insanity.

A Study of Heredity in Insanity in the Light of the Mendelian Laws. (Journ. Nerv. and Ment. Dis., May, 1911.) Cannon, G., and Rosanoff, A. J.

As Mendelism holds good for eye colour, does it also hold good for insanity? This is the question the authors put to themselves in an investigation carried on at the King's State Park Hospital, of New York, of which they here bring forward the preliminary report. The pedigrees of 11 patients were examined, covering 35 matings and 221 offspring. Numerous pedigree charts are given. It may be noted that though numerous instances may be found of neuropathic children born

of normal parents, there is not a single case of a normal child born of two neuropathic parents. The following are the general results indicated: (1) Both parents being neuropathic all children will be neuropathic. (2) One parent being normal, but with a neuropathic strain on one side, and the other parent being neuropathic, half the children will be neuropathic, the other half normal, but capable of transmitting neuropathic strain. (3) One parent being normal, of pure normal ancestry, and the other parent neuropathic, all children will be normal, but capable of transmitting neuropathic strain. (4) Both parents being normal, but each with neuropathic taint on one side, one-fourth children will be normal, and incapable of transmitting neuropathic strain, one-half will be normal, but capable of transmitting neuropathic strain, and the remaining fourth will be neuropathic. (5) Both parents being normal, one of pure normal ancestry and one with neuropathic strain on one side, all children will be normal, one-half of them being capable, and the other half incapable, of transmitting the neuropathic strain. (6) Both parents being normal, and of pure normal ancestry, all children will be normal and transmit no neuropathic strain.

HAVELOCK ELLIS.

Mental Epidemics [Épidémies Mentales et Folies Collectives]. (Rev. Phil., April, 1911.) Dumas, G.

In the present section of his study of collective insanities, Dumas attempts to define on an ætiological basis the various conditions which may be included in this group. At the outset all insanities due to traumatism, physical or mental, are to be excluded; most alienists are agreed on this point: there must be *mental infection*. What, however, more precisely, are the causes of the condition? Here opinion has shown two tendencies. Some, like Weygandt, admit only contagion from one individual to another (predisposed) individual as the sole sufficing cause of psychopathic epidemics. Others, like Bechterew, consider that, in addition to individual infection, we must take into account "currents of opinion" in the social environment; this, indeed, was long ago the opinion of the sagacious Calmeil. Dumas ranges himself on the same side; the part played by individual infection has been exaggerated; we must also take into account a general cause of contamination, added to the individual contagion but distinct from it, and the subject himself has helped to constitute this general atmosphere before he suffers from it. As a simple example Dumas cites an epidemic of coxalgia which appeared among young peasant girls; we have not only to take auto-suggestion in consideration, but "a collective state of fear in the young girls themselves," due to the interest of the girls in the original case of real hip disease.

In explaining these general contaminations, defective nutrition (as the privations of Lent) has sometimes been invoked. Dumas will not admit this as sufficient to produce a definite psychopathic state; the general cause invoked must be mental. On the other hand, Dumas is equally opposed to those who believe that the general ideas and beliefs of an epoch can be the moral cause of a mental epidemic; they are general in their action and cannot produce an exceptional manifestation;

at the utmost they can only act as predisposing factors of certain epidemics. The real causes of psychopathic epidemics, apart from individual infection, are to be found in "currents of opinion" not yet constituted into general beliefs and practices. Psychologists and sociologists of the most opposed schools (like Tarde and Durkheim) are equally agreed that such currents may act with far greater force than any individual will. In a current of hopes or fears of this kind formed in a family environment, a paranoiac, a mystic, or a megalomaniac may exert his influence. "The psychopathic or neuropathic epidemic is thus conditioned by two orders of realities: an individual reality and a social reality."

Collective insanities are to be carefully distinguished from psychopathic or neuropathic epidemics. In the former every individual in the group is affected in so far as he participates in the group; in the latter certain members of the group are alone affected. Admitting that the historical examples of collective insanity are often doubtful, Dumas proposes the following classification, or rather, set of definitions; (1) *mental contagion*, or the contamination of one individual by another; (2) *mental and nervous epidemics*, or, the contamination of several individuals by a direct or indirect contagion, or by a collective current; (3) *collective and gregarious insanities*, produced (a) between normal persons or (b) between insane or neuropathic persons, and always characterised by the collective and synthetic form of their manifestations.

HAVELOCK ELLIS.

Pre-dementia Præcox: The Hereditary and Constitutional Features of the Dementia Præcox make-up. (*Journ. of Nerv. and Ment. Dis.*, Jan., 1911.) Jelliffe, S. E.

In 1907, Dr. Jelliffe published a paper on this subject, and the present contribution is a further statement of his views in the light of more recent literature, especially the work of Pilcz, Berze, and Meyer. After pointing out that a fairly definite pathological basis is being established for dementia præcox, he discusses the question whether there is a special constitutional character in the subjects of this disease. In his former paper, he concluded that the three most potent elements in the ancestry were dementia præcox itself, alcohol, and abnormal characters, the last-named being probably mild paranoid types themselves. These findings have been fully confirmed by the studies of Vorster, Berze, and others, which all go to prove the high proportion of similar heredity in this disease. In fact, the author thinks we have almost got to the point where a knowledge of the psychosis in the parents may clear up a doubtful diagnosis in the child.

Bilcz's recent work emphasises the importance of general paralysis and tabes also in the ancestry, especially of the hebephrenic cases.

In adolescents of such tainted stock fatigue is readily induced, and plays an important part in causing the mental breakdown. This is well marked in the case of children of psychically poor rural stock who are stimulated by an ill-directed ambition to take up intellectual pursuits in cities. In such cases dementia præcox is of frequent occurrence. An interesting case of this type is given in detail and carefully analysed.

The patient showed well the day-dreaming without efficient activity, the exaggeration of the ego, the inability of adjustment in the face of recurring difficulties, and a well-marked love-complex. The writer cannot accept Freud's view of the causal nature of the complex in these cases, but rather holds with Bleuler that the complex, while not causing the disease, may determine the symptomatology. Meyer's paper on the "Analysis of the Neurotic Constitution" (*Journ. of Amer. Psychology*, 1910) is largely quoted, and his excellent description of the beginnings of deterioration in the adolescent is well worth reading.

W. STARKEY.

Cerebro-Spinal Syphilis. (*Bristol Med.-Chir. Journ.*, March, 1911.)
Clarke, J. M.

In this, the Long Fox Lecture, Professor Clarke refers at considerable length to the three discoveries of recent times by which the study of syphilis has, as he points out, been enormously advanced, *e.g.*, that of (a) the *Spirochæta pallida* or *Treponema pallida* by Schaudinn, and its establishment as the infective agent and cause of syphilis; (b) of certain specific reactions in the blood and cerebro-spinal fluid of the subjects of present or past syphilis by Wassermann and others; and (c) the experimental communication of the disease to the higher apes. He then proceeds to describe the two different effects which the syphilitic virus has on the central nervous system—the selective action confined to what are known as para- or meta-syphilitic affections (he holds with those who consider that tabes and general paralysis are the sequels of a previous syphilitic infection), and, on the other hand, cerebro-spinal syphilis, in which there is no evidence of any such selective action. Speaking of late gummata, he says that it is possible that the spirochætes may remain long latent in the tissues, and yet be potent for mischief. Hoffmann succeeded in inoculating an ape from a gumma in a man three and a half years after infection. Passing to the clinical features of cerebro-spinal syphilis, he says they depend on several pathological processes which briefly comprise disease of the vessels and the results of this, new formations or gummata, and inflammations of a specific or gummatous character, especially in the meninges. The symptoms of cerebro-spinal syphilis are not so often produced by one of these processes, only as by two or more occurring together in varying combination and relative intensity. He divides the cases into cerebral and spinal, and the former into those with (1) vascular lesions; (2) gummata; (3) meningitis only; and (4) those with vascular and meningeal lesions or gummata in combination. Especially in the last group, both brain and spinal cord are affected together, and there is often a clinical combination at once suggestive of syphilis, a triplegia, a paralysis of one arm and both legs. In cases of cerebro-spinal syphilis some change in the mental processes is generally present. Of all prodromal symptoms the most frequent is headache, generally with nocturnal exacerbations. Of great importance are recurring paralyses, transitory aphasia, cranial nerve paralyses, and epileptiform fits. In cerebral vascular syphilitic lesions, hemiplegia, with or without aphasia, is common; syphilitic endarteritis

in the retina is not uncommon, and is a valuable aid in diagnosis. Cerebral gummata are often associated with Jacksonian or general epileptiform attacks. It is rarely possible, he says, to diagnose a gumma as an isolated lesion. There is generally concomitant meningitis or vascular disease. He is opposed to the practice of giving very large doses of iodide of potassium indiscriminately in all cases of intracranial tumour on the chance of their being syphilitic. Cerebral meningitis may affect the base, the convexity of the brain, or the membranes generally. In the two latter forms mental symptoms are, as a rule, present. The prognosis is not so good as in basic meningitis. In gummatous basic meningitis, paralysis of the cranial nerves is the characteristic feature.

Turning to some special signs and symptoms of cerebral syphilis, he finds that out of forty-five cases optic neuritis occurred in nine, and in seven of these there were signs of meningitis with or without other lesions. In four cases, with diffuse cerebral lesions, optic atrophy was found either in one or both eyes. Epileptiform fits occurred in seven cases, in two being associated with Jacksonian epilepsy. They were not present in any of his cases of spinal syphilis. He does not believe that a fully developed Argyll-Robertson pupil occurs in cerebro-spinal syphilis, but that its presence is an indication of a further degenerative change in the central nervous system, that is, of para-syphilis. The ultimate prognosis in cerebral syphilis when the symptoms indicate extensive lesions is not good, he says, and in the majority of cases life is shortened.

Of syphilitic affections of the spinal cord, speaking generally, he finds the chief symptoms are spastic paresis or paralysis with some ataxy, early affection of the bladder, and root lesions. The most common condition in cases of spinal syphilis is that generally entitled meningo-myelitis, but he agrees with Holmes and other observers that there is seldom a true myelitis.

The onset may be acute, rarely sudden, or gradual, and disturbances of sensation are, as a rule, less than those of motion, and recovery from them earlier and more complete. The lecturer, after referring to the differential diagnosis of chronic syphilitic spinal meningitis and tabes dorsalis, gives a short account of Erb's syphilitic spinal paralysis, of some rare cases of spinal syphilis presenting the characters of sub-acute or chronic anterior poliomyelitis, and of spinal affections in hereditary syphilis.

Finally, speaking of treatment, he considers the most important points to be rest in bed and the prompt and efficient administration of mercury.

A. W. WILCOX.

Senile and Presenile Insanity in Diabetes [*Psychoses Séniles et Préséniles dans le Diabète*]. (*Rev. de Psychiat.*, Feb., 1911.)
Halberstadt and Arsinoles.

The authors quote numerous cases, and go into considerable detail in some to demonstrate that there is much confusion caused by classing all persons who are insane and have sugar in the urine the subjects of diabetic insanity. They draw attention to physiological and nervous glycosuria.

In assigning diabetes as a cause of insanity care must be taken to exclude the part played by arterio-sclerosis and alcohol.

Leaving aside such "elementary" mental disturbances as change of character, etc., which have been attributed to diabetes, and directing attention to insanity proper, there are three groups of facts which deserve attention:

Firstly those cases in which diabetes is only a complication or passive accompaniment of an attack of insanity.

Cases of autotoxic origin and admittedly due to diabetes.

And lastly those instances in which diabetes exists, and by causing arterio-sclerosis causes cerebral deterioration.

The form of insanity is usually depression with morbid fears for the future, delusions of worthlessness, while hallucinations are not uncommon. The writers think that more clinical reports are required before the so-called pseudo-general paralysis and diabetes can be associated.

COLIN M'DOWALL.

3. Clinical Psychiatry.

Dementia Præcox in Imbeciles [Über *Dementia Præcox auf dem Boden der Imbezillität*]. (*Allgem. Zeits. f. Psychiat.*, Bd. lxxvi. H. 1.) Plaskuda, W.

Dementia præcox is described in fifteen cases of congenitally weak-minded adults from the Institution for Idiots at Lübben. There is nothing extraordinary in the course of the disease in any of the cases, but it is noteworthy that only four were under twenty years of age at the onset. The ages in the other cases varied from twenty-one to thirty-seven. The most common were the hebephrenic and catatonic forms, and the attacks were very severe.

These cases are not to be confused with early forms of primary dementia.

HAMILTON C. MARR.

On Cases of Primary Dementia in Childhood. (*Early forms of Primary Dementia*) [Ueber Fälle von "Jugendirresein" im Kindesalter. (*Frühformen des "Jugendirreseins"*)]. (*Allgem. Zeits. f. Psychiat.*, Bd. lxxvi, H. 34.) Vogt, H.

At one time all mental diseases in children were termed "idiocy," or "imbecility." It was not considered possible that an onset of insanity should take place in the charmed years of childhood. With the knowledge that the development of the brain is a process continued long after birth came further discoveries as to the pathology of this development, and with increased investigation we find more and more frequently that we can trace the roots of various mental diseases back to the years which precede puberty. One of the most common forms of insanity in these years is primary dementia. It runs a course similar to that observed in adults. In children, however, the catatonic state is particularly characteristic. Children with normal mental development may be affected, but often weakness of mind is inherent. The attack results either in imbecility or recovery with and without defect. Relapses are frequent.

Differential diagnosis may be made from hysteria, heightened tonic-

of the muscles, organic diseases, and especially idiocy with catatonic symptoms. With this latter cases of early primary dementia in which a defect is left after recovery may readily be confused, and in many the differential diagnosis must remain doubtful.

Cases of dementia infantilis (Heller) belong partly to this early form of primary dementia.

HAMILTON C. MARR.

Catatonia in Childhood [*Katatonie im Kindesalter*]. (*Arch. f. Psych. u. Nervenkrankh.*, Bd. xlv, H. 1.) *Raeke*.

As a rule, catatonia is associated with the mental and bodily changes of puberty, but several writers (Kahlbaum, Kraepelin, E. Meyer, Ziehen and Infeldt) have recorded catatonic states in children of from seven to fourteen years.

In this article ten typical cases are described. The children are of both sexes, and their ages range from twelve to fifteen years. In all ten cases was found the rapid change from dulness to excitement, with a tendency to stereotyped phrases and actions, bizarre and impulsive behaviour and movements, and to blind resistiveness without marked emotional anomalies or loss of consciousness. A few of the cases showed heavy stupor, mutism, refusal of food, uncleanly habits, indication of *flexibilitas cerea*; others had distorted habits, and hysterical symptoms, also retarded mental development. Indeed, four of the children were congenitally weak-minded; the remaining six are said to have been normal mentally.

There were five recoveries, but two of these relapsed, one patient died of phthisis, two were discharged not recovered, and two improved.

Summary.—Catatonia may appear in children, especially from the years from twelve to fifteen, and does not differ substantially from the adult form. It is often based on a congenital mental defect, and develops from this without being materially affected by outside influences.

Many so-called imbeciles with catatonic symptoms have possibly suffered from an attack of catatonia in childhood, and their mental condition may to a great extent result from this. The existence of imbecility has no marked influence on the form and on the prognosis of catatonia.

HAMILTON C. MARR.

Insanity following Delirium Tremens [*Über Residualwahn bei Alcohol-deliranten*]. (*Allgem. Zeits. f. Psychiat.*, Bd. lxxvii, H. 4.) *Stertz, G.*

Out of thirty-three cases of delirium tremens examined nine remained for days or weeks after recovery from delirium in a paranoic condition. The prognosis in such cases is favourable. The irregularity is apparently to be traced back to a more or less long-standing bodily cachexy, and is the expression of a torpid reaction of the organism.

HAMILTON C. MARR.

Contagious Ulcerative Stomatitis in Mental Diseases [*La stomatite ulcerativa contagiosa nei malati di mente*]. (*Ann. di Nevrol., Fasc. 6, Anno 28*). *Angelillo*.

Accounts of epidemics of contagious ulcerative stomatitis, occurring chiefly among soldiers and children, have been placed on record mainly

by French writers. The present article is concerned with the description of an outbreak that occurred in one of the houses attached to the large asylum of Aversa, near Naples.

The epidemic began in November, 1910, without apparent cause, and affected a class of chronic cases of insanity. Two patients became simultaneously ill; and, in a short time, others lying in adjoining beds were affected. Altogether, within two months, eleven patients were attacked.

The lesions were first seen in the mucous membrane of the gums; more rarely they began in some other part of the mouth. The affected parts became red and swollen, spongy, and painful; the inflammation deepened and spread, and gave rise to abundant fibrinous exudation, which formed a greyish-white membrane. This membrane was very adherent to the underlying tissues, and, if torn off, caused much bleeding. The membrane underwent a coagulation-necrosis; superficial ulcers ensued which, in healing, left cicatrices. The parts of the mouth that were simultaneously or successively infected were the borders of the tongue in contiguity with the gums. From the tongue the disease spread to the soft and hard palates and throat; the teeth became involved in the inflammatory processes and suffered partial or total necrosis.

In four patients death was caused by acute pulmonary inflammation directly due to the spreading of the stomatitis, and in one case a chronic tubercular focus was raised into activity and was the cause of death.

In nine cases pseudo-diphtheritic bacilli were present in great numbers associated with staphylococci, streptococci, diplococci of Frankel, and in one case a fusiform bacillus.

While the author would not attribute a pathognomonic importance to the pseudo-diphtheritic bacilli, he is of opinion that they played an important part. In the four patients already noted, who died, the pseudo-diphtheritic bacilli were found in the lungs associated with the diplococci of Frankel.

The treatment adopted consisted in strict isolation of the infected patients, antiseptic precautions, and syringing of the mouth with a mixture of glycerine and phenol. Preventive measures were taken with the non-affected patients in the shape of strict cleansing of the mouth, and especially of the teeth, for which a weak solution of phenol was used.

HAMILTON C. MARR.

Kleptomania and Mental Depression [*La Kleptomanie et la depression Mentale.*] (*Journ. de Psych., March-April, 1911.*) Janet, P.

The writer has demonstrated previously that many abnormal impulses owe their origin to the temporary excitation produced. The excitement relieves for a time periods of depression and psychasthenia from which the patient suffers. In the present paper, this mechanism is shown in a case of kleptomania, occurring in a lady of about 50 years. At this age the patient began to suffer from attacks of depression in which she ceased all her usual occupations, became indecisive and hesitant over the simplest action, and lost interest in everything, lamenting continually over her unhappy state. Accompanying this depression were various physical symptoms—anorexia, indigestion, constipation,

etc. The first two attacks lasted nearly a year, but the third was cut short at the end of a few weeks, after which similar crises were observed to last for only a few days. This was surprising in view of the previously prolonged nature of the attacks.

After a time the patient was suddenly arrested for stealing, and it was found that she had concealed at home a large number of articles taken from various shops. She confessed that in the first place she had held an article in the hand while shopping, and the thought occurred to her that she might be taken for a thief, the idea disturbing her considerably. This emotion caused her the first violent interest she had felt for some time, and taking the article out of the shop she became filled with a delightful commotion. Her depression had vanished, and she felt all her old interests return. It returned in a few days, however, and she began to think of the pleasurable excitement she had experienced by her theft, and she decided to again see if it would produce a similar effect. The result was the same, and thus for some time, until her arrest, she was able to banish her depression by gratifying this curious impulsion to steal. The explanation of the relative brevity of her third attack was thus revealed.

H. DEVINE.

On the Process of Oxidation in the Organism and the Toxicity of Urine in the Insane [Über die Oxydationsprocesse der Geisteskranken und die Giftigkeit des Harnes derselben]. (From the Chemical Laboratory of the Institute for Experimental Medicine and the Hospital of the Emperor Alexander III, in Udjelnaja.) (Arch. f. Psych. u. Nervenkrankh, Bd. xlv, H. 1.) Juschtschenko, A. J.

The experiments described in this paper were made with the object of obtaining a better understanding of the process of metamorphosis in the organism which results in mental derangement. There is no doubt that only by such investigation can we arrive at a scientific classification of mental diseases presently classified chiefly on the basis of symptomatological examination.

The various components of urine and their relationship to each other are examined, and a study is made of the toxin in the urine of insane persons. The process of oxidation in the living organism is tested, the method of Nencki and Sieber being used, *i.e.*, benzol (C_6H_6) becomes oxidised to phenol ($C_6H_5 \cdot OH$) by the working of molecular oxygen (O_2).

The benzol which is introduced into the organism is partly given off unoxidised through the lungs and the intestinal canal, and partly, under the influence of the vitality of the protoplasm it is oxidised to phenol ($C_6H_5 \cdot OH$).

The phenol is not found in the urine in a free state, but is united with sulphuric acid in the form of ethyl sulphuric acid ($SO_3OH \cdot O, C_6H_5 \cdot$).

By this method the author made interesting experiments on the process of oxidation in healthy persons, in persons under the influence of hunger, after poisoning by phosphorus, arsenic, chloroform and ether, and in insane persons suffering from different forms of anæmia, inflammation of the lungs, and pseudo-hypertrophy of the muscles

In sane persons on an average, 1.0 gr. of benzol produced 0.33 gr. of phenol, and with this as a standard, the process of oxidation was abnormal in all cases of insanity which were tested.

In melancholia was found a lessening of oxidation.

In a case of senile melancholia there was an increase of oxidation after a subcutaneous injection of salt solution.

In a case of periodic melancholia the oxidation fell during the attack but rose on recovery.

There was an increase of oxidation in cases of dementia præcox, paralysis, and also in periodic melancholia.

The relation of the urea to the mass of nitrogen in the urine was, in the cases examined, usually proportionately less in the insane.

In a few cases the toxicity of the urine was tested and the urotoxic co-efficient placed, but owing to the small number of cases examined in this direction, wide-reaching conclusions could not be drawn from the results.

Dr. Juschtschenko promises to go more deeply into this subject, and we look forward with interest to further publications by him.

HAMILTON C. MARR.

The Urine in General Paralysis [Urologie des Paralitiques Generaux]. (Rev. de Psychiat., Feb., 1911.) Labbe, H., and Gallais, A.

The results of observers of the urine in general paralysis have been contradictory; the reason suggested by the writers is the fact that the urine alters in character as the disease progresses. Fifteen cases are reported upon, all of the female sex.

The colour seems to depend upon the concentration of the fluid, the odour varies with the reaction, a mucous cloud is frequently present, and a froth is easily produced. Regarding the amount passed in twenty-four hours, neither a relative nor an absolute polyuria has been noted. The percentage of urine as compared with the intake of fluid is 67, and this percentage diminishes as the disease advances, until late in the third stage of the malady it is as low as 59.8.

The specific gravity is normal. The reaction is always alkaline when the patient is moribund, and this must be an example of the resistance of the organism, bacteria growing badly in an alkaline medium. Nitrates are excreted in a diminishing amount until the immediate *ante-mortem* state, when an increase was observed. The chloride output increases with the disorder, reaching a maximum at the last.

Albumen is frequently present, especially in the later stages. Glycosuria was noted in two cases. Indican is always found, bilirubin occasionally, urobilin very rarely.

The authors point out that the general results show the characteristic progression of the disease to a cachexia progressive in itself.

COLIN M'DOWALL.

Hysterical Pyrexia [Ueber hysterisches Fieber]. (Zeitschr. f. Neurol. u. Psychiat., Bd. v, H. 5, 1911.) Kauffmann, M.

An investigation of the evidence for and against the existence of "hysterical" pyrexia and other functional disturbances of the general economy of the body.

The author reaches the following conclusions :

(a) Functional pyrexia actually exists. It is to be regarded, however, not as a production of fever by psychical influences, but as a result of morbid affections of the heat-regulating centre in the brain.

(b) The body-weight can vary considerably as a result of centrally conditioned disturbances of the kidneys, and of alterations in the innervation of the muscles.

(c) In hysteria, as in the psychoses, a temporary dissociation may exist between "vegetative" and "psychical" functions. That is to say, both may not be affected at the same time, or one may recover before the other. This is to be ascribed to a non-synchronous lesion of the different parts of the brain concerned.

BERNARD HART.

Dupuytren's Contraction as an Associated Condition in some Psychopathies

[*La contrattura palmare fenomeno concomitante di alcune psicopatie*].
(*Ann. di Freniat.*, vol. xx, fasc. 4, Dec., 1910) Bellini, G.

In this paper, the author records brief clinical notes of twenty cases of insane patients presenting in more or less marked degree the condition of contraction of the palmar fascia. The cases, which were collected from a series of a thousand admissions to the Turin Asylum, belonged for the most part to the more strongly hereditary types of mental disorder. Thirteen of the cases occurred in women and seven in men. In no instance was there a history of injury or of professional occupation involving special pressure on the palm. Almost all the patients presented concomitant symptoms of trophic disorder in the upper extremities—shiny skin, brittle, ridged nails, imperfectly developed muscles, etc. There were also in several of the cases disturbances of sensibility, especially of thermic sensibility. In view of these facts the author suggests that the palmar contraction in these cases is to be regarded as a symptom of syringomyelia, and that the mental disorders are to be attributed to a congenital cerebral deficiency under the dependence of the same degenerative causes that have given rise to the hypothetical fault in the grey matter of the cord. This would be in accordance with the theory of the neuropathic origin of Dupuytren's contraction, a theory which has recently found some support in the investigations of several Italian pathologists. The author hopes to verify his hypothesis when the cases come to autopsy.

W. C. SULLIVAN.

4. Pathology of Insanity.

A Fifth Contribution to the Pathological Anatomy of Infective Chorea
[*Quinto contributo all'anatomia patologica della corea infettiva*]. (*Riv. Sper. di Fren.*, vol. xxxvii, Fasc 1 and 2.) Guizzetti, P., and Camisa, G.

Guizzetti has published four previous communications on the pathology of infective chorea, the last in 1901. In the present instance the authors give the history and the pathological findings in two cases which were fully investigated in the clinique and the *post-mortem* laboratory, and at the same time pass in rapid review the cases

published by other investigators since 1901. In the first case (acute chorea), the macroscopic findings consisted of vegetating endocarditis, aortic, and mitral; bilateral broncho-pneumonia (terminal); congestion of the meninges and of the cerebral substance. The microscopic findings in the nervous system may be briefly summarised as follows: The changes were almost wholly confined to the cerebral hemispheres, and consisted of degeneration of the cortical cells, and more especially of complete chromatolysis of the Nissl-bodies, with accumulation here and there of nuclei in the lymphatic spaces around the cells; severe general congestion with some peri-vascular hæmorrhages, mostly, but not all, of recent date; vascular infiltration and proliferation; ischæmic foci, of rather unequal ages, presenting the various forms of softening and œdema produced by arterial embolism. In the pores were found several hæmorrhages of very recent origin, and regarded as terminal. The spinal medulla was normal.

In the second case (Sydenham's chorea), the gross morbid findings were slight negative mitral endocarditis, not recent; cardiac failure; pulmonary hypostasis and slight œdema; slight recent stasis of liver and kidneys; moderate meningo-encephalic congestion; small hæmorrhages in the pores on floor of fourth ventricle. Detailed examination of the nervous system showed that the changes met with affected principally the hemispheres, then the pores and medulla, and to a very slight extent the cerebellum, whilst the spinal cord remained normal. In the hemispheres were found complete chromatolysis of the cortical nerve-cells; tracts of inflammatory proliferation and infiltration of the peri-vascular lymphatic sheaths, especially of the small veins, and to a less extent of the capillaries and also some arterioles, accompanied sometimes by proliferation of the surrounding neuroglia, which latter change was also to be found without infiltration of the lymphatic sheaths. These alterations were most marked in the subcortical regions and generally in the corona radiata, and were distributed irregularly. They were almost completely absent from the optic-striate ganglia. They were present to a very slight extent in the white substance of the cerebellum. In the pores and medulla the peri-vascular infiltration assumed rather more pronounced inflammatory characters of more recent origin, and also accompanied by true inflammatory centres with small foci of small-celled infiltration distinct from the vessels. These alterations were more marked in the lower half of pores and upper half of medulla on the right side. There were no signs of emboli in the cerebellum or elsewhere. The parathyroid bodies were examined and evidence of increased production of glycogen noted.

In discussing their own and others' findings the authors conclude that endocarditis is an almost constant though not absolutely indispensable feature in the morbid anatomy of chorea. The alterations of the nervous system are always situated in the encephalon, and particularly the hemispheres. The most constant is infiltration with proliferation of the peri-vascular lymphatic sheath. Inflammatory alterations of the pia are probably constant, but always slight and proportioned to the inflammatory changes in the cerebrum. The blocking of blood-vessels, with softening and ischæmic-œdematous foci, is a frequent but inconstant finding. When present it is due to emboli coming from the endo-

cardiac vegetations, although a thrombotic origin, as held by some, is not impossible.

J. H. MACDONALD.

Researches on the Cytological Modifications of the Blood in the Principal Psychoses [*Ricerche sulle modificazioni citologiche del sangue nelle principali psicosi*]. (*Riv. Sper. di Fren.*, vol. xxxvii, Fasc. 1 and 2, 1911.) *Graziani, A.*

The writer has examined the blood at various periods during the course of sixty-five cases of insanity of various types, and compares his findings with those of other investigators, amongst whom are prominent Bruce and Peebles, Sandri, Dide, Sauna-Salaris, Lepine and Popoff. A clinical summary is given, and the blood-data are tabulated in each case. The numbers of red and of white corpuscles, the ratio of white to red, the percentage of hæmoglobin, and the percentage of the various types of white cells are given, as well as the result of the examination of the fæces for parasites and their ova. The conclusion arrived at is that only in isolated cases of insanity does the blood show appreciable alterations in the morphology or number of the red and white corpuscles, or in the amount of hæmoglobin present. Such alterations as are met with would appear to be the exponent of organic conditions which notoriously alter the state of the blood.

Modifications, sometimes very striking, are often observed in the number of leucocytes and the differential leucocytic formula. These cannot in any case be regarded as characteristic, for the simple reason that the same changes are found with varying constancy and intensity in different forms of insanity. They may be summarised as follows: Polynucleosis, and less frequently leucocytosis, and a tendency towards diminution of eosinophiles in the acute phase of the disease; then diminution of polynuclears down to the normal, or even below normal, with predominance of mononuclears when convalescence supervenes, or when the disease enters the chronic stage.

Intense polynucleocytosis with diminution of eosinophils is a constant finding in acute confusion, and a rarity in other mental affections, so much so that Sandri would regard it as of undoubted value in the differential diagnosis of the acute confusional psychoses from other states, *e.g.*, stuporous melancholia, or an initial confusional episode in a psychosis of chronic course (*dementia præcox*). Graziani, however, denies the diagnostic value of this finding, inasmuch as he obtained it clearly in some cases of *dementia præcox* and manic-depressive insanity with marked confusional features.

These hæmatological modifications throw light on the pathogenesis of the mental affections, because they reveal the existence of infective-toxic or toxic processes manifesting themselves in an acute or subacute form, and suggest the notion that the mental affection is only the mode of manifestation of cerebral disturbances arising from a general morbid alteration of the organism.

J. H. MACDONALD.

Colloid Bodies in the Central Nervous System: Their Presence after Severe Traumatism in a Case of Dementia Paretica. (*Journ. Nerv. Ment. Dis.*, March, 1911.) *Yawger, N. S.*

After reviewing the literature on the subject of colloid bodies and

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colloid degeneration, the author states that it would seem in the light of our present knowledge that the so-called colloid bodies may result from traumatism or from an inflammatory condition. It appears that the origin of these bodies is from the myelin of the medullated nerve-fibres, and rarely, from fragmentation of the axis cylinder. The condition of colloid degeneration seems to belong to another subject: here the various vessels are chiefly implicated, sometimes to the extent of ensheathing them.

He then records the case of a coloured patient, æt. 32, the subject of dementia parietica, who died nine months after his admission and twenty hours after having received repeated and severe blows on the head. At the necropsy, made a few hours after death, the usual gross appearances of chronic meningo-encephalitis were found. The brain was placed in formalin and later passed through alcohol. On microscopic examination colloid bodies were observed in great profusion in many parts of the brain, and were found as far down as the pons. They were not detected in the cerebellum and medulla, nor in the half-inch of cord available for examination. They were most abundant in the optic chiasm; the left eye had been dislocated, an occurrence which must have caused considerable traction upon the optic chiasm, and in a brain which had for many months been subject to a chronic meningo-encephalitis, the author thinks that it is not at all improbable that the myelin sheaths were ruptured with extrusion of particles of myelin. The diameters of the bodies for the most part fell within the range of $15\ \mu$ to $25\ \mu$. When viewed through a Nicol prism they showed no polarisation. The reaction with osmic acid was uncertain, and no direct connection between the particles and the nerve-fibres could at any time be traced; they did not stain with iodine, nor were they affected by sulphuric acid; a pinkish hue was obtained with hæmatoxylin. The most intense staining quality was exhibited when toluidin blue or thionin was used. The former gave a deep purple colour, while the latter imparted a distinct amethyst tinge to this substance. After a few days the colour began to fade, and by the end of three weeks it had entirely disappeared from the bodies.

The author thinks that these bodies might have medico-legal value if found after death in cases suspected of cerebral traumatism.

A. W. WILCOX.

5. Treatment of Insanity.

The Processes of Recovery in Schizophrenics (Dementia Præcox)
[*Heilungsvorgänge bei Schizophrenen*]. (*Allg. Zeits. Psychiat.*,
Bd. lxxviii, H. 2, March, 1911.) *Bertschinger, H.*

In mental disorders the personality is invaded, either suddenly or gradually, by complexes or concealed wishes, which acquire the same character of reality as the outside world. The individual may be completely or partially absorbed by such complexes. In the former case he appears completely confused and quite out of touch with

reality; in the latter his behaviour is contradictory and perverse. The recovery of the patient is shown objectively by his behaviour in so far as it conforms to the facts of external reality. In most cases it is impossible to understand the process by which the normal personality again gains the control of his unreal complexes, but in more favourable cases some insight into the process may be obtained.

In some cases the patients are able to *correct* their delusional ideas by various means. Thus in one case recovery dated from the moment a patient, who suffered from visual and aural hallucinations in respect to certain relatives, noticed that her real relations came through the door and the subjective images of them appeared suddenly. In other cases explanatory conversations on the part of the physician appear to correct the delusions, but, as the author remarks, in these cases the recovery probably largely depends on unknown inner processes which prepare the ground for successful therapeutic results. Another patient explained his recovery from conversation with a paranoiac, the falsity of whose hallucinations he was able to discover. Recoveries of this kind usually only occur in intelligent patients.

Another interesting mechanism is that in which the patient fulfils his complex by symbolising it. The morbid contents of the psychosis is some wish which cannot be fulfilled in a real sense, but the patient succeeds in doing so by giving a symbolic interpretation in the sense of wish-fulfilment, to some real experience. Thus the writer has noted recovery in three cases after the extraction of teeth, the symbolic significance of which is well known in the dreams of normal women. Under this category come cases in which there is a more or less successful attempt at conversion of a delusion into bodily symptoms. Several cases are noted in which patients who, in the remissions of mental symptoms, habitually complained of various bodily ailments which had no apparent somatic basis. Possibly also the well-known amelioration of mental symptoms during bodily illness come under this category.

Recovery at times occurs after the patient has passed through a series of imaginary experiences which bring the complex to a natural conclusion. On emerging from their confusional state the present external experience of the patients often conflicts with the period of their experience at the onset of the psychosis; they are thus in the position of those people in legends who were enchanted and woke up at the termination of a prolonged sleep. In one case the author noted upon the recovery of a lady, æt. 35, a curious childish behaviour due to the fact that the completion of her wish-complex had brought her back twenty years. A similar state of affairs is that in which the patients on waking out of their confusion find themselves in an asylum. They often explain this away by calling it a hotel and the like, or else regard it as a general hospital for bodily diseases.

Other cases occur in which some real experience leads to the occurrence of a strong *affect* with beneficial result. Complexes are no doubt suppressed again in this way by employment and the arousing of external interests.

H. DEVINE.

The Disadvantages of Work as a Method of Treatment in Acute Insanity
 [Über die Nachteile der Arbeitstherapie bei akuter Geisteskrankheit].
 (Zeit. f. Psychiat., Bd. lxxviii, H. 2, March, 1911.) Kauffmann, M.

The author considers that while various forms of occupation are of unquestionable value in the treatment of mental disease, the general systematic application of such methods is open to considerable objection. He bases his criticisms on physiological grounds. In the first place he points out that in many cases of insanity there is a disorder of heat-regulation. In such cases increased heat-production, such as occurs in muscular exercise, is not counter-balanced by a compensating increased heat-loss and a so-called "work-fever" occurs, accompanied at times by increased excitement. In such cases employment may be considered to exercise a harmful influence.

The brain is also concerned with the co-ordination of muscular movements. Increased exercise must expose it to increased strain and in morbid conditions exerts a harmful effect, in the same way that exertion will do in diseased cardiac conditions. The increase of fatigue products will also act unfavourably on a morbidly sensitive cerebrum.

Rest in bed will favour recovery in mental disease in the same way as it promotes the healing tendency of the organism in bodily disorders. As in the latter also it permits treatment by suitable diet, especially that which will prevent nitrogenous retention and increased combustion.

H. DEVINE.

Bromide Intolerance and Bromide Poisoning. (Journ. Nerv. Ment. Dis., June, 1911.) Casamajor, L.

According to Laudenheim bromide salts, especially sodium bromide, given to a bromine-free organism, are not at first excreted in the same amounts as they are absorbed, for at least one week the greater part of ingested salt being stored up in the body. An equilibrium between intake and output is only established after the formation of "bromide depots" of sizes varying with the individual. The stored-up bromine salts remain for the greater part in the lymph. The main causes for predisposition to bromism are poverty of the body-fluids in chlorine, and impairment of the action of the heart and kidneys, occasioned, in part at least, by the bromides themselves. Symptomatically bromide poisoning may occur in two different forms: (1) General apathy and dulness; (2) delirium. The first form, with its somnolence, weakness and failure of memory, is the more frequently seen; indeed, as the author remarks, this mental picture is so often the rule in epileptics of long standing that one may well question whether it is to be ascribed to the epilepsy or to the bromides which the patient has taken. These symptoms may appear in some persons after even very small doses. The delirious form of bromism has been much less frequently reported than the other, but is very probably, the author thinks, often overlooked on account of the many confusing symptoms it may exhibit. It is a true toxic delirium showing marked hallucinations, psycho-motor unrest, fabrications, and paraphasia. With this delirium very peculiar physical signs may be present, such as unequal, sluggishly reacting pupils, increased and unequal knee-jerks, tremors, unsteady gait and ankle

clonus, indeed, many of the cases reported in the literature had been originally diagnosed general paresis. In the author's first case the patient, a girl, æt. 25, had received 1777½ gr. of potassium bromide in forty-four days. In addition she had been taking two drachms of tincture of hyocyamus daily for the last twenty-one of those days. Noted briefly, the salient features of this case were early onset of speech difficulty and bromic breath (a peculiar, sweet, fœtid odour of the breath described by Voisin), gradually developing dulness and apathy, then sudden delirium characterised by distractibility, some tendency to flight of ideas, confusion and more especially vivid hallucinations of sight and hearing, misidentification, fabrication and paraphasia, and as the delirium receded her memory and orientation were found to be lost. The physical signs were irregular, sluggishly reacting pupils, right facial palsy, tongue protruding to right, increase of reflexes, ankle clonus and general hyperæsthesia. The second case, that of a widow, æt. 34, was complicated by the fact that the patient was actively syphilitic, and that other drugs besides bromides had been used, and possibly played a part in the development of the delirium, although the author has little doubt that bromide was, in the main, responsible for her condition. Confusion, loss of memory and orientation, and a delirious stream of thought, together with the thick utterance and characteristic breath of bromide intoxication, seem to have been its most marked features. He is impressed with the belief that in some cases of delirium tremens treated by bromides, the alcoholic delirium is replaced by that due to the bromide, and that the use of bromides as local sedatives is generally contra-indicated in the case of weak and anæmic patients.

A. W. WILCOX.

6. Sociology.

The Idea of Degeneracy in the Work of Morel [L'idée de dégenescence dans l'œuvre de Morel]. (Rev. de Psychiat., April, 1911.) Genil-Perrin.

The paper bearing the above title is one of considerable historical interest.

Morel introduced numerous new conceptions into psychiatry, some of which have remained current with more or less modification up to the present time. He continued the work of Pinel and Esquirol, who had been the pioneers of the study of mental disease from the scientific rather than the metaphysical standpoint. Insanity had until that time been regarded as a disease of the soul and as having no relation to disease of the body. Morel laid stress upon the close relation between the two and the necessity for a study of the two on parallel lines. He was largely inspired by the recent researches of Flourens upon the structure and functions of the nervous system and the experiments of Claude Bernard and Majendie to determine the effects of toxins and of abnormal feeding upon the function of the same. Morel himself studied the effects of alcoholism on the Swedes, of the opium habit on the Chinese, and of consanguineous marriage upon the offspring of the Portuguese colonists of Malacca. He also investigated the effects on the race of unhealthy environment generally—climate, soil, lodging,

customs, occupations and feeding. Among such effects he enumerated on the physical side—stunting, partial or general arrest of development, deformity of head and relative sterility, and on the mental side, perversion or enfeeblement of intelligence and instincts.

One metaphysical conception Morel retained in his work, probably as the result of his early training. He believed that man had not been evolved, but created perfect as described in Genesis. His liability to degeneracy resulted in the first instance from original sin. This left him vulnerable to external influences making for various forms of degeneracy, one of which was liability to insanity.

This hypothesis apart, he insisted that the incidence and development of mental disease was not a permanent mystery, but followed definite laws which could in time be elucidated by scientific inquiry.

In regard to causation, he accentuated especially the influence of hereditary predisposition, regarding this as the most important factor in a majority of the cases, though not in all. He proposed to classify cases on an ætiological basis, distinguishing in the first place those arising solely through the operation of external influences, and those in which hereditary predisposition played a more or less important part.

In regard to the former class, he stated that such cases formed the starting-point of future degenerate stocks. Where the environment or habits are such as to induce in the parents mental as well as physical defects, the offspring will be more likely to exhibit mental defects than had those of the parents been merely physical. He seems to have been quite undisturbed by doubts as to the transmissibility of acquired characters.

He propounded the "Law of Progressive Degeneracy," which stated that where the tendency to degenerate had been introduced into a stock, it was prone to manifest itself by the development of increasingly gross forms of degeneration in successive generations.

He elaborated (though he did not originate) the conception that what was transmitted was not the disease, but the predisposition to it. Moreover, he maintained that the inherited neuropathic predisposition need not manifest itself by the development of the identical condition that existed in the parent, but might instead lead to the development of one of certain allied conditions. He taught that while it was possible to differentiate special types of degeneracy, yet they had common characteristics, and there were no absolute distinctions between the types.

He described in detail numerous anatomical stigmata which stamped the hereditary degenerate, such as microcephaly and other deformities of the skull, deformities of the palpebral fissures, ears and teeth, anatomical and functural defects of the generative organs leading to relative or absolute sterility.

He described also certain mental abnormalities commonly exhibited by such individuals (apart from definite alienation) especially excessive sensitiveness to external circumstances and emotional instability. He also enumerated the general characters distinctive of insanity occurring among those predisposed by heredity, and the special types of the disorder commonly met with in such individuals. Morel had also the intention of producing a work dealing fully with the possibility of

the prevention of degeneracy or of its effects, by altering the environment, but this intention was frustrated by his death.

E. MAPOTHER.

L'Automatismo Impulsivo [*Impulsive automatism*]. (*Ann. di Freniat.*, vol. xx, fasc. 4, Dec., 1910.) Marro.

In this article, which is the second of a series of studies of the cerebral factors of homicide, the author deals with the automatic activities underlying impulsive violence. He points out that, while in the earlier stages of human history impulses of aggression were brought into play as much in satisfying the instinct of self-preservation as in satisfying the instinct of reproduction, the progress of civilisation has repressed and modified these impulses in a much greater degree with regard to the former than the latter of these fundamental tendencies. Puberty in the male involves the simultaneous development of two mechanisms—of the specifically sexual mechanism on the one hand, and on the other hand of those excito-motor mechanisms which subserve the aggressive impulse, and which are awakened at this time in association with the condition to which Marro applies the term “psychic hyperæsthesia.” It is this special excitability of the sensory-motor images of violence that determines the frequently homicidal character of adolescent criminality. Where it is absent, as is usually the case with women, the psychic hyperæsthesia of puberty is far less dangerous. The author would find in this fact the explanation of the relative rarity of homicidal offences in women. According to his view the sexual struggle between males is a notably important factor in homicide, and in this connection he observes that in his experience, in the large majority of instances, the victim of the male murderer is of the same sex. [Though this may be true of Italy, it does not hold good elsewhere; in this country, for instance, as pointed out by Sir John Macdonald in his remarkable introduction to the Criminal Statistics of 1905, “murder means to a very great extent the murdering of women by men.”—W. C. S.] The persistence even in civilised man of the tie between the sexual function and the automatic mechanisms which are called into action in impulsive homicide has an important influence in maintaining the force and organisation of these mechanisms. Hence in conditions which involve a disintegration of the personality, or, in less marked degree, an enfeeblement of voluntary control, there is a special liability to homicidal explosions. Amongst such conditions Marro refers more particularly to sleep and the state between sleeping and waking, somnambulism, epilepsy, and alcoholic intoxication, quoting instances of homicidal acts committed in these different states. As in the phylogenetic development the cerebrum has gradually increased its dominance over the lower centres, so, in the author's view, the ontogenetic development of the cerebral functions through education may be expected to augment the power of control and to restrain the sphere of automatism. In confirmation of this opinion he states that he has found the educational level amongst homicidal criminals to be very low; the proportion of illiterates, which in the non-criminal population amounts to 6 *per cent.* and amongst criminals in general to 12 *per cent.*, comes to 22.5 *per cent.* amongst homicidal offenders.

W. C. SULLIVAN.

Medico-legal Report on a Case of Attempted Murder [Tentative d'homicide; rapport médico-légal]. (Bull. de la Soc. de Méd. Ment. de Belg., Feb., 1911). Louveaux and Claus.

This report is of special interest on account of the relatively slight direct evidence on which the medical experts succeeded in establishing the irresponsibility of the culprit. The individual in question, a youth, æt. 20, was charged with the attempted murder of his parents. From the evidence it appeared that the old people were attacked while sleeping, and were severely injured by several blows with an axe. The attempt was made in the dark, and when the other members of the family came on the scene at the cries of the victims, the accused took his part in assisting them, and in looking for traces of the assassins. In this, however, he rather over-did his rôle, and showed by various remarks that he had made dispositions before the crime with a view to diverting suspicion from himself. His guilty knowledge was further proved by a puerile pretence of not being able to find the axe with which the crime had been committed, though it had been put back in its usual place, and was easily discoverable, by suggestions that the stains of blood on it were due to rust, and by other silly subterfuges of the same sort. Moreover, direct proof of his culpability was given by the evidence of the younger children, who saw him re-enter his bedroom just after the first cries. It was shown that he had been on very bad terms with his parents, and that he had latterly had a special grievance in their opposition to his choice of a fiancée. The accused from the first protested his innocence, and appears to have shown in his defence a fairly acute appreciation of the force of the several points made against him, meeting all those of much cogency with a flat denial.

The experts who were commissioned to report on his mental state did not see the accused until some fourteen days after the crime. They then found that he presented a transitory anæsthesia of the right cornea, a more permanent anæsthesia of the pharynx, exaggeration of the knee-jerks, and dermatographism. He was mentally obtuse, failed to do simple calculations, and seemed to have a very defective memory. Within a few weeks these symptoms became much less marked; the patient appeared more intelligent, and displayed some degree of moral sensibility which had been previously lacking. At the same time the anæsthesia greatly decreased. Inquiry into the family history showed a strong psychopathic taint. The patient himself had appeared abnormal from childhood; he was dull and troublesome at school, and showed extreme mobility of mood; he suffered from enuresis till the age of eleven. For some three years before the crime the strangeness of his conduct had attracted attention; on two occasions he had pretended to have been the victim of murderous attacks by unknown aggressors, his account of the affair in each instance being plausible and circumstantial, and supported by the evidence of torn garments; he was suspected on pretty good grounds of having been the author of two fires, his apparent motive being to cover the traces of some petty thieving. Shortly before the homicidal attempt he produced a number of anonymous letters slandering his fiancée, which he alleged

that he had received, but which it was subsequently found that he had himself written. Taking into consideration the patient's bad family history, the evidences of morbid temperament which he had shown throughout his life, and more particularly just before the crime, the disorders of sensibility, and the slight mental obtusion detected when he was first examined, and finally the character of the crime and the absurd inadequacy of its presumed motive—taking all these points into account, the experts concluded that the accused “was suffering from a mental disease, and should therefore be regarded as irresponsible.” As to the nature of the affection, they offer two alternative views, *viz.*, either that the patient was in a state of hysterical somnambulism, in which, however, there was so little disturbance of consciousness that he could co-ordinate his actions, and could use his reason to invent a defence, though he could not resist the homicidal auto-suggestion, or, in the alternative, that he was a “psychic degenerate,” with a morbid incapacity to control his impulses. This somewhat wide extension of the limits of legal irresponsibility appears to have been accepted without difficulty, and the patient was sent to a lunatic asylum, where he died two years later without having developed any more definite symptoms.

W. C. SULLIVAN.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

The seventieth annual meeting of the association was held at the Royal College of Physicians, Dublin, on Thursday and Friday, July 13th and 14th, 1911, under the presidency of (in the early part), Dr. John Macpherson, and later of the new President, Dr. William R. Dawson.

There were present : Drs. Dora E. Allman, Fletcher Beach, John Bain, J. Shaw Bolton, David Bower, C. Hubert Bond, A. Helen Boyle, James Chambers, R. B. Campbell, M. A. Collins, E. M. Courtenay, Henry Cullinan, W. R. Dawson, Thomas Drapes, J. Francis Dixon, T. O'C. Donelan, J. O'C. Donelan, F. H. Edwards, M. J. Forde, Wm. Graham, John W. Geddes, T. A. Green, R. D. Hotchkis, C. E. Hetherington, John Keay, W. Leggett, R. R. Leeper, Geo. F. May, Colin McDowall, T. W. McDowall, John Macpherson, Marion E. Mackenzie, E. Mapother, Mary E. Martin, John Mills, Alfred Miller, M. J. Nolan, H. Hayes Newington, J. A. Oakshott, F. O'Mara, E. D. O'Neill, P. O'Doherty, J. B. Spence, J. G. Soutar, W. H. B. Stoddart, Rothsay C. Stewart, and R. Percy Smith.

Apologies for absence were received from Drs. Adair, Auden, Bower, Bullen, Bevan-Lewis, Sir R. Brayn, Bowles, Coller, S. Coupland, Carre, Caldecott, Clouston, Marriott Cooke, Benson Cooke, Dickson, Elkins, French, J. E. M. Finch, Gayton, Gaudin, Goodall, Gemmel, Jeffrey, Carlyle Johnstone, Robert Jones, Legge, Lord, Lindsay, Lawless, T. C. Mackenzie, Ivy McKenzie, H. C. Martin, Monnington, P. W. MacDonald, Sir James Moody, J. Middlemass, Morrison, K. D. C. Macrae, G. D. McRae, A. Newington, F. Needham, J. Neil, Orr, Pearce, Powell, Bedford Pierce, Raws, Rows, G. R. Robertson, W. Ford Robertson, Skinner, Savage, Sankey, Sykes, Simpson, Sall, Shuttleworth, Steele, Steen, Treadwell, Turnbull, A. D. Thompson, D. G. Thomson, J. Turner, F. R. P. Taylor, A. R. Urquhart, E. White, Wolseley-Lewis, Watson, Outtersen Wood, D. Yellowlees, Mr. G. T. Hine, and Mr. A. H. Trevor.

Attendance at previous Council Meeting: David Bower, C. Hubert Bond, R. B. Campbell, James Chambers, W. R. Dawson, J. F. Dixon, T. Drapes, Wm. Graham, R. D. Hotchkis, Richard R. Leeper, John Macpherson (in the Chair), Alf. Miller, J. Mills, M. J. Nolan, H. Hayes Newington, R. Percy Smith, J. G. Soutar, and W. H. B. Stoddart. (Total, 18.)

MINUTES.

The minutes of the last annual meeting, having already been printed and circulated in the Journal, were taken as read and were duly confirmed.

ELECTION OF OFFICERS, COUNCIL, AND STANDING COMMITTEES.

The PRESIDENT called attention to the notice. The nominations made by rule 67 are entered on form B. The attendances of all officers and members of the Council for the past year, rule 67 (a) are also noted on form C. He asked that voting papers might be handed in, and he nominated Dr. Bower and Dr. Dixon as Scrutineers for the voting papers.

Later, the PRESIDENT announced the report of the scrutineers, namely, that all the names on the agenda proposed as officers and nominated members of council had been voted for. All the voting papers except one were in order, that one not having been signed. He therefore declared that all the gentlemen had been duly elected to the various offices.

ELECTION OF STANDING COMMITTEES.

PARLIAMENTARY COMMITTEE.

The PRESIDENT asked whether it was the will of the meeting that the gentlemen who had been nominated for election on the various standing committees should be elected.

Dr. BOND said he would like to point out that there had been a change in the secretaryship of the Scottish Division, and he did not think the Divisional Secretary, Dr. Campbell, was on either of those Committees, which was rather a pity, as he had to come up to the various meetings, and if the Association could include his name, his services would be procured on both Committees. He therefore moved that the name of Dr. Campbell be added to those on the agenda.

Dr. STODDART seconded, and it was agreed to.

EDUCATIONAL COMMITTEE.

Dr. BOND repeated his motion in reference to this Committee, namely, to add to it the name of Dr. Campbell.

Dr. STODDART seconded, and, there being no other motion, it was agreed to.

LIBRARY COMMITTEE.

As there were no further nominations for this Committee, the names printed on the agenda were accepted.

REPORT OF THE COUNCIL.

This was read by the General Secretary, Dr. Bond, who moved its adoption as follows:

The number of members—ordinary, honorary, and corresponding—as shown in the list of names published in the *Journal of Mental Science* for January, 1911, was 730, as compared with 722 in the corresponding number of the Journal for the year before. The difference is accounted for by the increase of 7 in the ordinary and 1 in the honorary memberships.

The following table shows the membership during the past decade:

Members.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
Ordinary . . .	580	586	597	620	641	638	645	652	673	680
Honorary . . .	37	37	36	35	32	32	30	29	32	33
Corresponding .	11	12	12	15	15	15	15	15	17	17
Total . . .	628	635	645	670	688	685	690	696	722	730

From this table it will be seen that the membership of the Association has increased by just over 100, or 16 *per cent.*, during the last ten years, the augmentation being almost entirely in the ordinary members.

The number of new ordinary members elected and registered between the publication of the last two lists was 41—not so numerous as during the previous year, but still very satisfactory.

The resignations of 20 ordinary members were received during this period, and the names of 7 other were removed.

The Council regrets to have to chronicle the deaths during this period of Sir Arthur Mitchell, K.C.B., who joined the Association in 1866 and had been an honorary member since 1871, and of seven ordinary members, whose names have already appeared in last January's number of the Journal. Among them was the name of Dr. T. N. Brushfield who was one of the original members of the Association, also the name of Dr. Baker, a past President, and the names of Drs. H. J. Manning, James Rutherford, and A. H. Stocker, all of whom had been members over forty years. Since the publication of the current list, the Association has to deplore the deaths of Sir George O'Farrell, an honorary member, and Dr. E. B. Whitcombe, a past President.

The usual quarterly meetings were held in November, February, and May. That in February was, by the courtesy of Dr. Edwin Goodall and the Committee of Visitors, held at the New Cardiff City Mental Hospital. A medical programme of high order was provided by Dr. Goodall and his staff in conjunction with other medical men working at the Mental Hospital. The thanks of the Association are due to the Lord Mayor of Cardiff, the Committee of Visitors, and Dr. Goodall for generous hospitality. Special interest was evinced at the May meeting by the exhibition of a number of cinematograph films illustrative of modern medical research.

Similar thanks are due to Dr. John Macpherson and several others in Edinburgh in connection with a specially successful and enjoyable annual meeting held in that City.

The attendance at all the meetings has again been very encouraging. The papers have been numerous and their standard in general very good.

Thirteen Divisional meetings have been held, at which the attendance has been satisfactory. The membership of the Divisions, as reported to the May Council meeting, was :

South-eastern	249
Northern and Midland	154
(Including the candidates for election at the April Divisional and May General meetings.)	
South-Western	94
Scottish	96
Irish	60

The Council has completed its scheme, which emanated from the Irish Division, for the granting of Divisional prizes for the best papers read by assistant medical officers at Divisional meetings, and the papers read during the year commencing January, 1912, will be eligible for competition.

The Housing Committee has again found it necessary to meet, and presents a report.

The British Committee of the International Institute for the Study of the Causes

of Insanity has continued to meet. The Council has resolved to vote a sum of £10 annually to the Institute for three years, provided that the President and Treasurer of the Association are satisfied each year of the continued advisability of so doing.

The Medical Inspection of School Children Committee has held several meetings, and has accomplished a considerable amount of useful work. It presents a report.

The Parliamentary Committee, after a lull in the activity of legislation affecting our specialty, found it necessary to hold an urgency meeting in connection with the Bill, now under the consideration of a Select Committee of the House of Commons, to amend the Superannuation Act of 1909. Dr. Spence is now the Chairman of this Committee. The Council recommend that the Chairman of this Committee should be an *ex-officio* member of Council. If this is approved by the annual meeting, effect will be given to the appointment at the earliest possible moment.

The Educational Committee—under the Chairmanship of Dr. Mercier—has again been confronted with much continuous work, largely in connection with the new arrangements for the Nursing Certificate.

The Association's efforts to induce Universities and other qualifying medical bodies to grant degrees or diplomas in psychiatry have met with signal and gratifying success. The decisions of the Universities of Durham, Edinburgh, Manchester, Cambridge and Leeds, to grant such special diplomas, may be said probably to mark an epoch in the training of those engaged in the study and treatment of mental diseases. It is hoped that in the course of another year other Universities and examining bodies will have seen their way to grant similar facilities.

The Journal, as judged by its satisfactory circulation, continues to be much appreciated. The editorship is about to receive a most serious loss by the retirement of its two senior members, Dr. Rayner and Dr. Urquhart, the conspicuous value of whose services is too great to be adequately dealt with in this report.

The Library Committee again presents a report indicative of valuable work on the part of its members. The suggestions made in its last report have been carried into effect with success, and their utility has been manifest.

The proceedings of the Association at its annual, quarterly and council meetings have been worthily presided over on each occasion by Dr. John Macpherson, whose presidentship has been marked by dignity and courtesy.

The finances of the Association remain in an eminently sound position under the continued vigilance of the treasurer, whose unstinted interest in all that pertains to the welfare of the Association renders the members under a deep debt of gratitude to him.

The entries for the Nursing Certificate during the past year have been very high—269 in November (of whom 62·8 *per cent.* passed), and 824 in May, a total of 1093. Under the new regulations 207 candidates presented themselves in May for the Preliminary Examination. It will thus be seen that the Registrar's duties during the past year have been exceptionally heavy. To him, to the divisional secretaries and other officers, the warm thanks of the members are due for the efficiency of their work and the amount of time they so willingly devote to the affairs of the Association.

The PRESIDENT asked whether it was the wish of the meeting to receive and adopt the report.

Dr. HAYES NEWINGTON said he did not know whether the present would be the right time to mention a matter, but the Report alluded to the retirement of two old servants of the Association, and he would like to say a word on the point. He did not know whether there was any member senior to himself who should take precedence in such a sad function as pronouncing the benediction on two with whom those on the Council had worked so well in former years, Dr. Urquhart and Dr. Rayner. He wished to move that a formal resolution of great regret on the part of the Council and of the Association be passed, and a copy of it sent to both those gentlemen. Dr. Rayner was one of the past generation, almost, to most of them. He did not know how many years Dr. Rayner had been a member, but people had come and gone from Hanwell, many superintendents had passed though that institution since his time, and one might almost say that his connec-

tion with the officialdom of the Association was at least as long as that. He, the speaker, remembered at least thirty years ago, when Dr. Rayner was secretary of the Association for a short time, an office which he took at great inconvenience to himself in order to fill a gap. He was President many years ago, and for many years he filled the post of editor, and a most useful editor he had been. He was not only a man of the best taste, but he had exerted a great moderating influence throughout some of the stormy times through which the Association has passed. He was now an old man, and the Association could but wish him happiness in the years of his life still remaining. So, too, with regard to Dr. Urquhart. He was a man whom few members of the Association could afford to miss as a friend, and very few could afford to miss as an officer of the Association, and especially as editor. Dr. Urquhart was a man of the greatest and widest knowledge, a great reader, and one with a very nice sense of the duties which appertained to editing. He knew nobody in the Association, since the death of Dr. Hack Tuke, who so worthily filled the office of editor in regard to foreign literature. His knowledge of foreign psychiatry was inexhaustible, and he, too, had that particularly nice sense of what was right and proper which had conducted so much to the satisfaction with which the work in the Journal was received by its readers. He formally moved that a copy of the report be sent to those two gentlemen.

Dr. PERCY SMITH seconded, and the report of the Council was adopted, together with Dr. Hayes Newington's proposal.

ANNOUNCEMENTS.

Dr. BOND, in making the announcements concerning the day's arrangements, intimated that Dr. Kirkpatrick, Registrar of the College of Physicians, had prepared and exhibited in an adjoining room a museum of books, instruments, etc., connected with insanity.

THE FINAL EXAMINATION FOR NURSING CERTIFICATE.

Dr. M. A. COLLINS asked whether the number of candidates who sat for the final examination on this occasion was exceptional. If not it appeared to him that as the number of those who sat for the primary were only a quarter it was a somewhat serious reduction in the entry.

Dr. MILLAR (Registrar) replied that the numbers for the past eight or nine years, during which he had had the honour of being Registrar, had been generally 650 and upwards. If the 830 did not constitute a record, it nearly did so. The preliminary examination was the Association's first essay in that respect, and he thought many of the candidates were refused entry by inadvertence, possibly another 80 or 100. He thought the number who entered for the preliminary was about 300.

Dr. COLLINS said his object was to call attention to what appeared to him to be a big reduction.

Dr. BOND said he believed Dr. Collins's point was that 700 or 800 candidates usually came up for examination in May, and he wanted to know why there were not something like that number for the preliminary examination, and if there were not about that number now would there not be in two years a big drop in the May examination?

REPORT OF THE TREASURER.

Dr. HAYES NEWINGTON (Treasurer) said his Report was in the hands of members, including the Balance Sheet, and he would be happy to answer any question which might be asked on any item in it. He could, he believed, report generally that the affairs of the Association were in a satisfactory condition. He moved the adoption of the Report.

Dr. DONELAN (Napsbury) seconded, and, no member having any questions to ask, it was unanimously agreed to.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—For the Year 1910.

REVENUE ACCOUNT—January 1st to December 31st, 1910.

1909. £ s. d.	Dr.	Expenditure.	£ s. d.	Income.	£ s. d.	Cr.	1909. £ s. d.
476 8 6	To	Journal, Printing, etc.	509 0 10	By Dividends	...	...	46 3 6
129 13 6	"	Examinations, Association Prizes, etc.	261 9 10	" Sale of Journal	...	...	210 0 0
55 13 3	"	Petty Disbursements, Postages, etc.	51 10 1	" " Handbook	...	...	34 14 2
139 19 7	"	Annual, General and other Meetings	159 0 0	" Advertisements	...	...	22 1 11
56 0 0	"	Rent of Premises and care of Office	56 0 0	" Statistical Forms, etc.	...	...	19 17 6
6 6 0	"	Audit and Clerical Assistance	6 6 0	" Fees, Certificates of Psychological Medicine	...	...	386 13 7
206 18 2	"	Miscellaneous Account	108 6 0	" " Certificates of Proficiency in Nursing	...	...	31 10 0
—	"	Library Account	28 17 7	" Subscriptions	...	...	243 17 6
1070 19 0		Balance	1180 10 4				275 7 6
246 3 9			161 2 9				733 8 6
1317 2 9			£1341 13 1				£1341 13 1

BALANCE-SHEET—31st December, 1910.

1909. £ s. d.	Liabilities.	£ s. d.	Assets.	£ s. d.	1909. £ s. d.
0 18 7	To Journal Account, balance	0 15 8	By Lloyd's Bank:—Bankers	...	...
16 18 10	" Examinations Account, balance	52 0 8	" Stocks value at this date:	...	...
15 8 5	" Petty Disbursements Account, balance	18 10 9	" New Zealand, 3½ per cent.	...	...
14 0 0	" Meetings Account, balance	14 14 1	Do. (Hack Tuke Memorial)	...	...
—	" Rent, etc., Account, balance	14 0 0	Victoria, 3 per cent. (Dr. Paul's Bequest)	...	...
49 7 3	" Audit, etc., Account, balance	6 6 0	Do. 3½ per cent.	...	...
32 4 5	" Miscellaneous Account, balance	38 6 5	Manchester Corporation, 3 per cent.	...	...
1 6 8	" Library Account, balance	1 8 6	New South Wales, 3½ per cent.	...	...
140 4 2	" Gaskell Fund Account, balance	56 7 6	Midland Railway Preference, 2½ per cent.	...	...
1946 7 3	Balance—Balance at 1st January	202 9 1	Sales Account, balance	...	...
	Add: Balance of Revenue Account	1946 7 3	Fees Account, balance	...	...
		2107 10 0	Subscriptions Account, balance	...	...
	Deduct:		Examinations Account, balance	...	...
	Subscriptions written off	£ s. d.			
	Decrease in Value of Stocks	24 13 6			
		50 15 10			
		75 9 4			
£2086 11 5		2032 0 8			
		£2234 9 9			

(Signed) H. HAYES NEWINGTON, TREASURER.

(Signed) WOODINGTON & BOLT.

GASKELL MEMORIAL FUND.

STATEMENT BROUGHT ON FROM *Journal of Mental Science*, 1910, p. 759.

1911.			1910.		
June 30th, Balance	...	£ 83 17 11	July 1st, Balance	...	£ 28 17 1
			Dividends	...	22 15 0
			Oct. 1st	...	4 15 5
			1911.		
			Jan. 1st	...	22 15 0
			April 1st	...	4 15 5
		<u>£83 17 11</u>			<u>£83 17 11</u>
1911.			1911.		
July 13th—			July 1st—		
Dr. Porter Phillips' Prize	45	0 0	Balance	...	83 17 11
Dr. Moll (additional prize)	...	15 0 0	Dividends	...	22 15 0
Examiners' Fees	...	4 4 0			
Gold Medal	...	5 5 0			

H. HAYES NEWINGTON, TREASURER.

REPORT OF THE EDITORS.

Dr. CHAMBERS submitted the Report of his colleagues and himself, and formally moved its adoption as follows:

The history of the Journal during the past year has been free from any events calling for record.

The number of Journals printed was again increased at the commencement of the year, owing to the steady increase of membership and other causes, the total now amounting to 1125.

The cost of the Journal to the Association remains very much the same as it has been for many years past.

The Editors would again urge on the junior members of the Association the desirability of a still further increase in the amount of clinical work, and the need for additional assistance in the reviewing of German, French, and Italian works.

Two of the Editors, Drs. Rayner and Urquhart, regret that they have to tender their resignation, and in doing so beg to thank the Association for the loyal support which it has always accorded to them. They wish also to express a confident opinion that they leave the Journal in very competent hands should it be still entrusted to their colleagues.

The Editors wish to express their thanks for the very valuable assistance that they have received from the Assistant Editor, Dr. Lord, during the past year.

(Signed) HENRY RAYNER.

A. R. URQUHART.

JAMES CHAMBERS.

Dr. FLETCHER BEACH seconded, and it was carried.

REPORT OF THE AUDITORS.

Dr. BOND, in the absence of the auditors, read the Report as follows:

The Auditors had before them the accounts and vouchers, which were duly examined and found to be correct and in order.

The balance on the subscription account was £112 17s. 6d. as against £111 16s. 6d. of the previous year. We note with satisfaction that the subscriptions written off had lessened from £36 15s. to £24 13s. 6d. This is still a large amount, and it is regrettable to find that some 114 members are in arrears with their subscriptions. We would venture to remark that although this is, no doubt, the outcome of oversight, yet it means a loss of revenue and must increase the work of the Treasurer.

The income from the sale of the Handbook had not continued to increase, but fell from £50 9s. 6d. in 1909 to £34 4s. 2d.

There was a satisfactory increase in the total income from £1317 2s. 9d. to £1341 13s. 1d. as compared with 1909, but the expenditure has increased, lessening the balance from £246 3s. 9d. to £161 2s. 9d.

The main increase in expenditure was under the heading of Examinations, Association Prizes, etc., which rose from £129 13s. 6d. to £261 9s. 11d.

We cannot conclude without renewing the congratulations which have always formed a feature of previous Auditors' reports to the Treasurer on the excellent and business-like condition of the accounts and affairs of the Association, and we desire to express the hope that he will for many years be able to continue his great services in this capacity.

(Signed) JOHN R. LORD.
R. H. STEEN.

Dr. HAYES NEWINGTON remarked that the unpaid subscriptions could not be regarded as loss of revenue, which was the phrase used by the Auditors, because most of the subscriptions did come in eventually, though a few had to be written off. What the Auditors said about the arrears causing the Treasurer unnecessary trouble, as he and his deputy had to make applications for them, was true, and he was glad to have this protest about that unnecessary trouble. It would be quite easy for a member to give an order to his Banker, if he had one, which would save trouble and be much more convenient. With regard to the Handbook, there was a drop this time, but it must be remembered that last year, with which the present year was compared, there was a large sum of money paid in on account of the new edition. The supply of the Handbook was held up for a considerable time while the Revision Committee sat, and as soon as its labours were finished and the new Book was adopted by the Association, it was placed upon sale, and went off very well indeed. That accounted for the large sum last year, which was not likely to be repeated. The present year appeared to be about the normal. With regard to the examination, that was more a matter of explanation by the Registrar.

Dr. MILLAR explained that the introduction of all the new forms had much to do with the expenditure, and, in addition, a costly die was purchased to impress the documents concerning honorary and corresponding members.

Dr. BOND moved the adoption of the Report, which, after being seconded by Dr. EDWARDS, was carried.

Dr. BOWER asked whether the Auditors' Report was one which ought thus to be followed by a motion of adoption. The Auditors were asked to report, and they had done so.

Dr. CHAMBERS said he understood that one of the Auditors had retired, and, therefore, he had much pleasure in proposing Dr. Percy Smith as an Auditor for the ensuing year. If this were carried, the Auditors would be Drs. R. H. Steen and R. Percy Smith.

Dr. STODDART seconded, and it was agreed to.

REPORT OF EDUCATIONAL COMMITTEE.

Dr. STODDART read the Report of the Educational Committee, and proposed its adoption, as follows:

The work of the past year is characterised by the first preliminary examination for the nursing certificate under the new regulations, for which 207 candidates presented themselves in May. For the examination under the old regulations there were 269 candidates in November and 824 in May. The results are as follows:

169, or 62·8 *per cent.*, passed the November examination.

457, or 55·4 *per cent.*, passed the May examination (old regulations).

116, or 56 *per cent.*, passed the May examination (preliminary, under the new regulations).

Instructions to examiners and rules for the conduct of the nursing examinations have been drawn up and codified, and it is hoped that members of this Committee will refrain for some time from proposing further modifications. As soon as a rule is settled, some member, who has probably not been present when it was settled, proposes an alteration, which is carried by others who did not hear the

original arguments; the consequence is that the rules are in a state of perpetual flux, and the task of the officials who have to work them is made extremely difficult. Moreover, it is scarcely possible to say at any moment what the rules are, and quite impossible to conjecture what they will be in three months' time. Even if the rules are still imperfect, it is better to live under such imperfections than under rules that are continually changing.

The Sub-Committee on Post-Graduate Teaching and Diplomas in psychiatry has drawn up a scheme, and presented it to the various universities and other teaching bodies, with the results that at least four universities have resolved to organise special teaching in psychiatry, and to grant a diploma, that other teaching bodies have regarded the scheme favourably, and are disposed to adopt it in some modified form, and that some classes for the diploma have already been formed.

In order to obtain facilities for medical officers who wish to obtain the diploma in psychiatry, deputations have been formed in England, Scotland and Ireland, to approach their respective commissioners.

CHAS. MERCIER (*Chairman*).

W. H. B. STODDART (*Hon. Secretary*).

Dr. COLLINS seconded.

Dr. PERCY SMITH remarked, in reference to the diplomas which had been referred to, that the College of Physicians of London was that day considering a report of a special committee of the College on diplomas. The majority of the members of the special committee, who were not connected with the Medico-Psychological speciality, could not see their way to propose a special diploma, but they had agreed to recommend that men who had passed the examination for the Membership of the College should have an opportunity of passing a further examination in psychological medicine, and a special note would be added to their diploma of Membership to that effect. That was something towards meeting what it was hoped would be done.

Dr. T. W. McDOWALL desired to say a word or two about the practical difficulties which were being faced in connection with that diploma. He had the privilege of a long talk with Dr. Macpherson in Edinburgh about a month ago about the practical steps towards getting for medical officers facilities for teaching required for the diploma, and Dr. Clouston and Dr. Macpherson informed him that the assistant medical officers in Scotland had had a meeting, at which were discussed the practical difficulties of such officers getting away from their posts to attend the necessary classes. He had not been able to obtain the results of that meeting of assistant medical officers; but informally he had been discussing the matter with some of the members of the Educational Sub-Committee, and it was thought that it would be highly desirable for the assistants in the various divisions in England and Ireland to meet and confer. If there happened to be an assistant medical officer present, he would be very glad if he or she would inform the President and the meeting what practical suggestions the assistants in Scotland arrived at in connection with the attendance at classes.

The PRESIDENT said he did not think there was a Scottish assistant medical officer present, but asked whether Dr. Campbell could state anything.

Dr. CAMPBELL said the meeting which was referred to was held, but he did not think any definite conclusion was come to. The difficulty of getting away from the service of the asylum for a sufficient length of time to undergo the necessary studies was one which the men themselves could meet by making arrangements with the Superintendent of the asylum. But the outcome was a very indefinite one, and he did not think there was yet anything practical.

The Report was then put and adopted.

REPORT OF THE PARLIAMENTARY COMMITTEE.

Dr. BOND said the Chairman of the Parliamentary Committee desired him to intimate that a report was drafted, and was in the hands of the Secretary of the Committee, who, however, had been prevented from attending. There was some delay in the issue of the report, having regard to the present Pensions Amendment Bill. Dr. Nolan and himself (Dr. Bond) had a few days ago given evidence before the Select Committee of the House of Commons in reference to the Bill, and he believed that Dr. Clouston would do so to-morrow.

LVII.

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REPORT OF THE LIBRARY COMMITTEE.

Dr. FLETCHER BEACH read the report of the Library Committee, and moved its adoption, as follows:

During the past year a considerable number of new books have been added to the Library, comprising recent English, French, and German works on Psychiatry and allied subjects. Presentations of books have also been made by Dr. Hayes Newington and Dr. Percy Smith.

A portion of the grant, obtained from the Council last year, has been devoted to the binding of some 150 paper-covered volumes.

At the commencement of the present year a scheme was put into operation to meet the requirements of those members who wish to have an opportunity of perusing the current foreign journals. The Library subscribes to five journals—American, French, and German—and each number is circulated in turn to the members participating. The scheme has been extremely successful, and it is hoped that in future years this method of keeping members in touch with the development of psychiatry in Europe and America may be considerably extended. Drs. Chambers, Cole, Edwards, and Rayner have kindly offered to purchase four additional journals, and to forward each number to the Library at the expiration of a fortnight. By these means the value of the Library for purposes of reference will in future be considerably enhanced.

It is satisfactory to note that the number of books borrowed from the Library during the past year has again markedly increased.

(Signed) H. RAYNER, *Chairman*.

H. DEVINE, } *Hon.*
BERNARD HART, } *Secretaries.*

Dr. STODDART seconded, and it was carried.

REPORT OF HOUSING COMMITTEE.

Dr. PERCY SMITH read the report of the Housing Committee, as follows:

In accordance with the resolution passed at the Council on February 23rd, 1911, the Housing Committee beg to report as follows:

A meeting was held at 36, Queen Anne Street, on April 7th, 1911.

Present: Dr. Hayes Newington, Dr. T. O. Wood, Dr. Percy Smith.

Apologies for absence were received from Dr. P. W. Macdonald, Dr. Bedford Pierce, Dr. Ernest White, Dr. Robert Jones, Dr. H. Rayner, Dr. C. H. Bond.

Dr. Percy Smith was re-appointed Chairman.

The reference from the Council of February 23rd was read:

"That the communications received by the Treasurer be referred to the Housing Committee, with a request that it will at once take action in negotiating for further accommodation at any suitable place; that such negotiation should not provide for any union or amalgamation with any other Society; that the hypothetical rent should be about £100; that Dr. Bedford Pierce and Dr. Oswald be added to the Committee; that the Committee report to this Council in May and to the Annual Meeting in July."

Reference was made to the official bulletin of the special General Meeting of the Fellows of the Royal Society of Medicine, held on January 31st, 1911, by which it was evident that there would be no use in approaching the Royal Society of Medicine with regard to new quarters for the Medico-Psychological Association.

It is sufficient to quote from the remarks of Sir Henry Morris: "There is no thought or proposal to make any part of the building such as can be let in any way, and to give you assurance that what was done in this respect at Hanover Square will not be repeated in our new home," to show that the attitude of the Society has changed since our Treasurer had an intimation that it was possible the Royal Society of Medicine might take in other Societies.

The CHAIRMAN reported that he had had an informal interview with the Deputy Secretary of the Royal Society of Medicine, and received the information that the Royal Society of Medicine had definitely decided not to let rooms to other Societies. The Chairman also reported an informal discussion with Mr. Bethell, the Librarian of the Medical Society, by which it appeared that the

Medical Society, although considering the question of building another storey, have no definite scheme at present.

It was agreed to recommend to the Council "that a letter should be written to the Medical Society stating that should the Medical Society be considering in the immediate future an increase in its accommodation, the Medico-Psychological Association would be prepared to pay a rent up to £100 per annum for any such further accommodation as might be agreed upon."

The Chairman was requested to interview the present occupiers of 20, Hanover Square, to see whether they had suitable rooms for the Medico-Psychological Association, and, if so, on what terms they could provide the necessary accommodation.

Subsequently the Chairman interviewed Messrs. Knight, Frank and Rutley, of 20, Hanover Square, and ascertained that they had there a large room for meetings seating about 190 on the first floor. They also showed him two rooms which could be let for Library and Council meetings, the larger of which they were prepared to let for £100 a year and the smaller for £70 a year, the latter practically offering very little more space than we have at 11, Chandos Street. Or they could let a suite of rooms at £200 a year including firing and cleaning, but not lighting. In addition to this they would charge extra per meeting for the use of the large room. The rooms which they could let for Council or Library would be on the second floor and approachable by a small lift, but as the basement and other floors are also occupied by the offices of firms and other societies, it seemed to the Chairman that our Association would be very uncomfortable at its meetings apart from the question of expense. The old meeting room on the ground floor at the back of 20, Hanover Square is now used as an auction room, and it might happen that the building was rather crowded at the time of one of our meetings.

The letter from Messrs. Knight, Frank and Rutley embodying their proposals was produced.

After conference with Dr. Hayes Newington and Dr. Outterson Wood, it was decided to reply to Messrs. Knight, Frank and Rutley that we should not be able to entertain their proposals.

The Chairman added that just before the Council Meeting he again interviewed Mr. Bethell, and got him to write a letter to the following effect: "I am requested by the Council of the Medical Society to inform you that until such time as a larger room is available for the use of the Medico-Psychological Association's Library, the members of the Association can have the use of the Medical Society's Library for the purposes of reading, and for occasional meetings." He would be able to give, if desired, particulars of the interview with the Royal Society of Medicine, but he did not know that anything would be gained by it. The practical outcome of the report was that, in the matter of accommodation, the Association would go on as at present, because it was impossible to find any better and more convenient accommodation for their purposes at present in London. And unless the Medical Society should build another storey and a larger room, he thought the Association would be unwise to move in the matter. The locality was a very convenient one, and although the Library was cramped, it was the best that could be done at present, considering what could be afforded. He moved the adoption of the report.

Dr. HAYES NEWINGTON remarked that in regard to what Dr. Percy Smith said, the liberality of the Medical Society seemed to have been very considerable, and it was moved at the council meeting, and adopted, that an additional payment should be made to the Medical Society for that convenience. £40 per annum had previously been paid, and that amount had now been increased to £50. There was no doubt that the Association was getting more for the £40 than it was entitled to, and that was the reason the rent had been increased to £50.

The PRESIDENT asked Dr. Percy Smith whether the committee wished to be re-appointed.

Dr. PERCY SMITH replied that in regard to the Committee, as it was at present constituted, he feared that some of the members were retiring or had retired from London. For example, Dr. Ernest White was living in Shropshire and did not often come to London, and it would be difficult for him to attend Committees. He was not sure whether Dr. Outterson Wood would be very much in London, and it was a question whether the same Committee should be appointed with power to add to its numbers. If the question which the Committee dealt with was

likely to be raised again the Committee would be needed, but he did not know that it was going to be raised in any active form very soon.

This report was adopted and the Committee were re-appointed.

COMMITTEE *re* THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

Dr. HAYES NEWINGTON said he was Chairman of that Committee, and he reported as follows:

The Committee has held five meetings.

It is regretted that, in consequence of ill-health, bereavements, and other causes, the attendance has not been as large as it might have been, but certain individual members have attended every meeting, and thus the continuity of discussion has been preserved. The aid received from the non-alienist side has been but small, which is regretted, since it has been most acutely felt that the solution of the main question must be a matter in which the commingling of practical every-day experience of the juvenile mind with the knowledge obtained from special study of pronounced mental deficiency is absolutely essential. The Committee had a noteworthy opportunity of seeing how far the latter study can extend itself towards practicability on a visit to Darenth, the work at this Institution showing how really valuable results can be obtained from systematic and scientific arrangements of a training scheme. The Committee made the following note of that visit:

The number of defectives under training are—

	M.	F.	T.
In workshops	363	340	703
In other works, <i>e.g.</i> , kitchen, laundry, farm wards, etc.	172	233	405
Younger patients in school and school shops	155	290	445

Selection is practised, except from the ages three to five, but, as a fact, it is occasionally rendered difficult by circumstances of pressure elsewhere.

The trades taught are thirty-five in number.

Each trade is pursued at some profit, that is to say, there is a balance to the credit in each trade, amounting to £1956 on the whole, after allowing for the cost of material, and the wages of the trade-master and instructors. The orders are mostly placed, and to a very large amount, by the other institutions of the Metropolitan Asylums Board.

The Committee saw several elderly imbeciles at work with the younger imbeciles. Some of these have been sent in direct from asylums belonging to the London County Council. This is a new departure, which is worthy of imitation elsewhere. The mental condition of the adults is such that no harm is caused by the admixture of ages, such as is often seen in ordinary asylums. The work done by the adults is of the same nature as that done by the children, and no particular superiority due to greater age is found.

The results of the inspection on the minds of the Committee are: That imbeciles having any sign of intelligence at all are capable of useful training up to a certain limit, provided that that training is carried out on strictly scientific lines, as is the case at Darenth.

That the work done can be of machine-like accuracy, but when originality might be expected from the character of the work it is found to be entirely wanting. One or two seen in the carpenter's shop could be trusted to mark out mortice lines on simple things such as table-legs when the same had been done before. One young man was seen composing type for a circular, but he could not read, and his work was done by pure imitation and knowledge of where the particular type was placed in the fount. He proved the accuracy of a long word by measuring the length of the sample and his own work.

Some little advance to independence from sample was shown by one man in making a brush of a superior character, where he had to judge the length of the hair and its arrangement for the purpose.

Considerable manual dexterity was shown in the making of artificial flowers, the combination of which suggested some originality, but it was found that these were all exactly alike, a set of children each adding one bit of coloured paper in series.

The repairing of clothes and boots naturally allows more scope for individual judgment, and was very well done.

Where, as in carpentry, it is necessary to have two working together, the question was asked whether the two could be relied on to work as artisan and mate, but it was reported that that would be only so within very circumscribed limits, since the one could not be expected to subordinate himself to the other sufficiently. Each worker takes a pride in joint work as if it were all his own.

The question naturally arose when so much excellent work was seen, Could that worker make his living outside? The answer was in the negative, for though the work is so good it is executed too slowly to allow of the worker competing with the sane; and further, the work is only done so well because it is done under close and competent supervision of the master. Beyond these, of course, is the question of temper and power to look after individual interests. But on the score of industry and cheerfulness at work the inmates of Darenth can set an example to all outside. Nothing struck the Committee more than the eagerness to work with a smiling face. The Committee found both from report and from personal conversation with some of the workers that they preferred to work rather than to play or watch cricket, etc.

It is thought at Darenth that the inmates of Darenth should not be classified in any way definitely by age, but rather by their mental and physical capabilities. It is not advisable to separate patients over sixteen from those under sixteen, and no actual age limit can be laid down, as it often happens that a patient as old as eighteen years of age is only fit to mix with much younger inmates, while some of only thirteen and fourteen, if the ages given are only to be believed, should be placed with patients seventeen years of age or older.

The general conclusions of the Committee were that there is an amount of beneficial work done for imbeciles at Darenth that is not generally known, one might say suspected. If it were more in evidence there can be no doubt that much scepticism and hopelessness now shown as to any possible good being done by special institutions would be swept away. What the Committee saw done with a low brain power cannot but lead to the opinion that such institutions are an actual necessity, and would be successful in remedying pernicious idleness which is the only lot of imbeciles without such opportunities being given. In any circumstances the detention and maintenance of imbeciles must be costly. Darenth shows one way, and apparently the best, of lowering the cost, not only by the profit that can be made on the work, but by substituting happiness and ease of management for the reverse.

Finally, the Committee is convinced, after seeing the most favourable side of training, that life-long detention is essential for imbeciles.

The Committee considered very carefully the excellent scheme of inquiry drawn up and issued by Sir G. Newman, Chief Medical Officer of the Board of Education, for inquiry into the doubtful and difficult borderland cases which lie between evident deficiency and normality. They have made a few suggestions, which they propose to submit to Sir G. Newman.

Looking to the importance of the reference to it, the Committee begs to recommend that it be continued in work.

He added that the Committee were intensely surprised, and very much admired the knowledge and efficiency with which Dr. Rotherham brought out the best from what appeared to be hopeless material. He thought that that instance alone should be of great assistance in solving the question of what should be done with the mental defectives. He need scarcely remind the meeting that something had to be done, for since the passing of the Children's Act the attention of the public had been drawn very much to the question of how to treat mental defectives. The Committee thought that the Institution at Darenth had shown one very efficient way of dealing with those unfortunate beings. He concluded by moving the adoption of the report.

Dr. STODDART seconded.

The PRESIDENT, in putting the resolution of adoption, considered it was a very interesting report, and the Association was very much obliged to Dr. Hayes Newington for the trouble he had taken in the matter.

The motion was agreed to.

NATIONAL COMMITTEE FOR GREAT BRITAIN AND IRELAND *re* THE
CAUSATION OF INSANITY.

Dr. PERCY SMITH read the report as follows :

Since the date of the last report, one meeting of the British Committee was held in London, to consider what steps might be taken in this country to assist in the realisation of the proposed International Institute for the Study of the Causes and Prevention of Insanity. This has been found a complex problem, and progress has been slow. The position of affairs at present will be best explained by a reference to what has been accomplished by the parent body, the International Commission, composed of representatives of many countries. At the request of this body, the Italian government had agreed to act as intermediary in approaching other governments with the view of inducing these to appoint official delegates, with plenipotentiary powers, to meet the Presidential Committee of the International Commission, in order to discuss matters relative to the proposed International Institute, and to agree upon an annual grant of money from the various governments interested. It was hoped that this official conference might take place in Berlin, in October, 1910, just prior to a general meeting of the International Commission, which was to be held during that month, contemporaneously with the fourth International Congress for the Care of the Insane. Owing to ministerial changes and bureaucratic complications, some delay took place before the Italian Minister for Foreign Affairs was in a position to make the desired diplomatic advances. It was then necessary, first of all, to approach the German Imperial Government in order to obtain its opinion and sanction relative to this diplomatic conference in the German capital. Several months elapsed before a reply was obtained, and, in fact, it arrived but a few days before the date fixed for the general meeting of the International Commission, when it was too late to make other official advances. At the general meeting, which took place as arranged, it was announced that the German government had expressed the opinion that the problems in question were not sufficiently clear to allow of the conference giving practical results. This announcement caused considerable disappointment to all present, to the German representatives, as well as the others, for it had been earnestly hoped that a diplomatic meeting would have served in great part to solve the initial financial problem. The members, however, agreed that it was eminently desirable and worthy to continue to strive for the realisation of the institute, and proceeded to discuss the methods to be pursued meanwhile.

(1) It was reported that national committees had already been constituted in several countries and that others were in course of formation. It was agreed that the present aim of the national committees should be to carry out investigations into the causes of mental disorders and degeneration, in general or in particular fields, by collecting all possible documents and statistical data relative thereto, as well as the prophylactic methods adopted in the respective countries, and to transmit these items to the Central Bureau for their co-ordination.

(2) It was agreed that the main work of the Central Bureau should consist in the co-ordination of the reports and documents sent by the national committees in order to derive therefrom synthetical data bearing upon the causes of insanity as well as laws for its prevention, and in the communication of these results to the governments and the spreading of them amongst the populations through the intermediary of the national committees. To effect this, the Central Bureau should have a permanent and competent salaried staff. An official International Bulletin would also require to be published.

(3) It was agreed that until the time should arrive when the various governments will become persuaded that the commission is engaged in a matter of public interest and utility and come to an understanding as to the provision of finance for an officially recognised institute, it would be necessary for each National Committee to seek to obtain from its respective government (as well as from learned societies and philanthropic individuals and associations) the means necessary for carrying on its work. Each committee should transmit to the Central Bureau an annual contribution towards the general expenses, proportionate to its means. It was reported that certain governments had already given a grant to their national committees whilst others were waiting to learn what sum they ought to give.

(4) It was decided to hold a conference on the Study of the Causes and Prophylaxis of Insanity and Human Degeneration in Zurich, the seat of the Central Bureau, in September, 1911, and to invite members of various learned societies to be present and take part in the proceedings. (N.B.—This conference did not take place after all.)

(5) It was reported that the Central Bureau had been engaged in formulating (1) a uniform programme for investigations into the causes and prophylaxis of insanity and degeneration; (2) a model for uniform international statistics of the progress and prevalence of insanity; (3) an international classification of mental affections for statistical purposes (special committee, Drs. Alt, Bleuler, Tamburini, Percy Smith, and Van Deventer).

The following countries were represented at the general meeting of the International Commission in Berlin: Austria, Belgium, Bulgaria, France, Germany, Great Britain, Greece, Hungary, Italy, Luxemburg, Norway, Russia, Spain, Sweden, Switzerland.

The British representatives were Drs. Sir Horatio B. Donkin, John Macpherson (Government delegates), R. Percy Smith, and J. H. MacDonald.

Dr. Percy Smith was appointed a member of the Central Bureau.

The programme of work, or *questionnaire* as it is called, has now been prepared and forwarded to the National Committees. It is a very elaborate and imposing one. At the last meeting of the British Committee it was pronounced to be "much too diffuse as covering the whole ground of insanity."

Sir H. B. Donkin has been co-opted as a member of the British Committee. The Committee learned with much satisfaction that the British Government had decided, in accordance with the recommendation of the official delegates to the Berlin Congress, to send the annual reports of the Commissioners in Lunacy of the three Kingdoms to the Bureau of the International Commission.

All members of the Medico-Psychological Association of Great Britain and Ireland are invited to co-operate with the British National Committee in its endeavour to advance the objects of the International Commission. The Secretary will be glad to receive any documents or communications bearing upon the ætiology, prophylaxis, and statistics of insanity, and to forward these to the Central Bureau. Any who may be willing to attend or contribute to the proceedings of the International Conference to be held in Zurich next September, can obtain further particulars from the Secretary of the British Committee, Dr. J. H. MacDonald, Govan District Asylum, Hawkhead, N.B.

An earnest appeal is made for subscriptions and donations towards the funds of the British Committee.

R. PERCY SMITH (*Chairman*).

JAMES H. MACDONALD (*Secretary*).

July, 1911.

Dr. PERCY SMITH added that with regard to the funds, which still remained the central difficulty, the British Government could not see its way to subscribe towards that object. The Report showed that the German Government could not see its way. It would be in the recollection of his hearers that after the Conference which was held in Vienna, at which Dr. Macpherson and he were present, the Government was asked to see its way to subscribe something towards this International Commission. But it would not do so, and he believed that, so far, only the Italian Government had given anything in the way of funds. The British Government now, since the report of Dr. Macpherson and Sir Horatio Donkin, had agreed to send the Annual Reports of the Commissioners in Lunacy of the three countries. This would supply to the International Commission that which could not be obtained from any other country, because no other country had such comprehensive and full reports as those which were made by the British Commissioners in Lunacy in the three Divisions of the Kingdom. With regard to the Conference which was proposed to be held in Zurich in September, 1911, he wrote to the General Secretaries, and Dr. MacDonald had written also, asking when the Conference was to be held, but he regretted no reply had been received. It would be within the recollection of members that in May he raised the question whether the Association could see its way to subscribe anything, as it had been suggested that learned societies should subscribe towards the object. As the Treasurer said that morning, it was agreed to do so if the President and Treasurer considered that

it was a wise thing to do. After that meeting in May he wrote to Dr. Ferrari, who was one of the General Secretaries of the International Commission, to ask him whether any other societies had subscribed, and informing him that the Medico-Psychological Association was willing to subscribe, but did not wish to be the only one doing so. He regretted to say that he had not received any reply, nor, he believed, had Dr. MacDonald. He therefore feared that the working of the International body was very slow. In moving the adoption of the Report he wished to say that he did not know whether anything would come of the efforts which were being made. With regard to the lists of questions and subjects for inquiry which were sent over, he did not think they quite expressed what was the meaning of the meeting of the International Commission last October. Professor Alt was asked to draw up a programme, and allot subjects to the different countries. The result was that they had sent a diffuse general inquiry, which left matters in a very nebulous state. He thought it desirable to find out whether that was really intended to be their programme or not.

Dr. NOLAN seconded the adoption of the Report, and in doing so said he thought it would be well if future meetings of the International Committee could be held when no other meetings in connection with the Association were in progress. He was at the last General Meeting in London, and while the International Committee was sitting in one of the rooms the Parliamentary Committee was sitting in another room. A Committee whose work was so important should surely have an hour set apart for itself.

The PRESIDENT remarked that he was unable to attend the meeting of that Committee because the Parliamentary Committee was sitting at the same hour.

Dr. PERCY SMITH, answering Dr. Nolan, said the difficulty was to get people to come into a meeting at any other time. If it should be thought well that a meeting of that Committee should be held at some other time he would be quite glad. The meetings had been held at times which sandwiched them between the Educational Committee, or the Parliamentary Committee, and the Council, and there was a small quorum. He would take the recommendation or suggestion into consideration.

The PRESIDENT said he had received no notification of any motion involving the expenditure of funds.

The report was adopted.

DATES OF FUTURE MEETINGS.

The PRESIDENT remarked that, in regard to the November meeting, a communication was read at the Council meeting that morning from the Royal Society of Medicine, of London, suggesting an open discussion with the Medico-Psychological Association upon a date in November corresponding to the Association's quarterly meeting. He did not know whether that date might coincide with the date provisionally inserted in the agenda, namely, November 14th, 1911. But with that exception, the meeting could proceed to fix the dates of the annual, quarterly, and divisional meetings of the Association, and the quarterly meetings of the Council.

Dr. HOTCHKIS called attention to the fact, in regard to the quarterly meeting mentioned on the agenda for May 14th, 1912, that usually the quarterly meeting in that month was held in London in the third week in May, but for next year it had been changed to the second week. The examination for the Nurses' Certificates took place on the first two Mondays. On the second Monday in May the final examination for the Nursing Certificate would take place. Tuesday was agreed upon some time ago, as affording an advantage for those who lived at a distance of getting a week-end ticket. If any members from such a distance as Scotland wished to go to London for the week-end at that time, it would mean that they would not be able to superintend the examination for the Nurses' Certificate, and they would have to leave it to their assistants. In view of the regrettable incident which happened last year, he suggested that the date might be altered.

Dr. BOND said he did not think there had been any change in time. The last referendum which was made to the Association asked which were the most popular days of the week for the meetings, and it was found that the most popular was

Tuesday. Accordingly it was agreed that two of the three quarterly meetings should be on a Tuesday. The next most popular day was Thursday. Therefore it was arranged that one quarterly meeting in the year should be on a Thursday to suit those whose asylum duties always prevented their attending on a Tuesday, but nothing was said as to the meeting being on the second, third, or fourth Tuesday or Thursday in the month. So it had come to be a custom of writing to the new President to ask him which Tuesday or Thursday in the month, as the case might be, fitted in with his private arrangements. The dates on the agenda had been arranged in that way. He did not, however, doubt that an alteration could yet be made if there was any difficulty.

The PRESIDENT said that Dr. Hotchkis had pointed out that Tuesday was the date immediately following that appointed for the examination for the Nursing Certificate in May.

Dr. BOND said the point could probably be rectified, as time remained to give sufficient notice to the members of the Association regarding such alterations.

Dr. MILLER said there was the same objection to Tuesday, November 14th, as to May. Both those dates practically clashed with the date for the Nursing Examination, and for superintendents who came from a distance it was unfortunate. The Nursing Examination had never been held on the second Monday until the present suggestion on the agenda. It had always been the first Monday in the month.

The PRESIDENT remarked that it would be necessary for someone to move a resolution. He asked Dr. Hotchkis whether he would put his recommendation in the form of a resolution.

Dr. HOTCHKIS moved that on both occasions, in May and November, the date be put forward one week, *i.e.*, to November 21st, 1911, and May 21st, 1912, if that should prove to be suitable to Dr. Dawson. He did not wish to move anything which was not likely to be convenient to the President.

Dr. STODDART seconded.

Dr. BOWER said that would be going back to the usual week in which the meetings had formerly been held. At least he had a strong recollection that the meetings had been about the third week of May and November.

The motion was then put and agreed to.

The divisional meetings were approved, as follows:

South-Eastern Division.—Wednesday, October 4th, 1911 (Bucks County Asylum); Tuesday, April 23rd, 1912.

South-Western Division.—Friday, October 27th, 1911; Friday, April 26th, 1912.

Northern and Midland Division.—Thursday, October, 19th, 1911 (Boreatton Park, Salop); Thursday, April 18th, 1912 (Garlands Asylum).

Scottish Division.—Friday, November 17th, 1911; Friday, March 15th, 1912.

Irish Division.—Thursday, November 2nd, 1911; Thursday, April 18th, 1912; Thursday, July 4th, 1912.

The PRESIDENT, in intimating that the meeting would now proceed to the election of the ordinary members, nominated the same scrutineers as before, namely, Dr. Bower and Dr. Dixon.

Later, the President intimated that the four gentlemen had been elected, as follows:

Buss, Howard Decimus, B.A., B.Sc.Univ. France, M.D.Brux., M.R.C.S., L.R.C.P., L.M.S.S.A.Lond., Assistant Medical Officer, Fort Beaufort Asylum, Cape Colony (proposed by John Conray, H. Hayes Newington, and C. Hubert Bond).

Chambers, Walter Duncanson, M.A., M.B., Ch.B.Edin., Assistant Physician, Crichton Royal Institution (proposed by C. C. Easterbrook, Chas. Macpherson, and Geo. R. Jeffrey).

Dickinson, William Gilbert, M.D.Durh., M.R.C.S., L.R.C.P., D.P.H.Lond., Wood Hill, Portishead, Somerset (proposed by James Chambers, G. F. Barham, and C. Hubert Bond).

McCalman, Hugh, M.B., Ch.B.Edin., Assistant Medical Officer, County Asylum, Lancaster (proposed by T. P. Cowen, David Blair, and R. P. Sephton).

With regard to the election of honorary members, he would call upon Dr. Percy Smith.

Dr. PERCY SMITH said he had the honour to submit to the Association the names of three gentlemen who had been proposed as honorary members of the Association. The first was Sir Horatio Bryan Donkin, the second Professor Dr. Karl Moeli, of Herzberge, Berlin, and the third Professor Dr. René Semelaigne, of Paris. Those gentlemen had been duly proposed, and the names of those supporting them printed.

Sir Horatio Donkin was a Fellow of the College of Physicians of London, formerly Physician to the Westminster Hospital, and for many years Prison Commissioner. Recently, since retiring from the active duties of that post, he had been retained as Medical Adviser to the Prison Commission. In the year 1910 he was sent as Delegate from the British Government to represent it at the International Congress in Berlin on the Care of the Insane. In 1910 he was the Harveian Orator at the College of Physicians, London, and took for his subject "Heredity." He was an important member of the Royal Commission on the Care and Control of the Feeble-minded in 1904, and also of the Departmental Committee on the Inebriates Acts and the Treatment of Inebriety in 1908. The reports of those Commissions would probably yet form the subjects of legislation, and it was important that Sir Horatio should be closely connected with the Association. He was very much interested in questions of mental disease, and had made numerous contributions to the literature of general as well as neurological subjects.

Professor Karl Moeli was the director of the large asylum in Berlin situated at Herzberge. At the International Congress on the Care of the Insane, held in Berlin, 1910, Professor Moeli was the President, and filled that post in a most dignified and genial way. He was thoroughly familiar with the methods carried out in the care of the insane in this country, having visited many asylums in the United Kingdom. When he, Dr. Smith, was Superintendent at Bethlem Hospital, Professor Moeli frequently came round that institution with him. The Professor had contributed over thirty papers to medical literature on nervous and mental diseases, and in recent years had written on the subject of the relationship between crime and insanity in connection with new legislation on the subject in Germany. His title of Geheimer Medizinal Rat indicated the esteem in which he was held by the Government of his own country. He, Dr. Smith, had in his possession a very long list of his papers and contributions to medical literature, which he would read to the meeting if any member desired him to do so, but perhaps that was unnecessary.

Dr. René Semelaigne, of Paris, had been a Corresponding Member of the Association for many years. He was connected by descent with the great Dr. Pinel, and his father was a well-known alienist physician. Dr. Semelaigne had himself served a long period as Secretary to the Medico-Psychological Association of Paris, and had made many contributions to literature, and supplied the Journal of the Association with abstracts from French journals for many years. At a meeting of the Association which was held in Dublin in 1893, when the late Dr. Connolly Norman was the President, he remembered Dr. Semelaigne reading a paper in English. Dr. Semelaigne having been so long a Corresponding Member of the Association, it was now proposed that he should be elevated to the peerage.

The PRESIDENT remarked that the gentlemen referred to had already been duly proposed and seconded as Honorary Members of the Association. Dr. Percy Smith had kindly given a very excellent summary of their qualifications, and the reasons why they had been proposed as Honorary Members. It was necessary to ballot for them.

They were unanimously elected.

ELECTION OF CORRESPONDING MEMBERS.

Dr. PERCY SMITH said that the three gentlemen whom it was proposed to elect as Corresponding Members were Professor Dr. Justus Karl Edmund Boedeker, Privat Dozent and Director Fichtenhof Asylum, Schlactensee, Berlin; Dr. Wilhelm Falkenberg, Oberarzt, Irrenanstalt Herzberge, Berlin; Professor Dr. Adolf Albrecht Friedlander, Director of the Hohe Mark Klinik, near Frankfort. Professor Boedeker was now the Director of the Fichtenhof Asylum, an Extraordinary Professor in the University of Berlin, since 1909, and a Privat-

Dozent since 1896. He was formerly Assistant Medical Officer at the Duldorf and Herzeberge Asylums, and at the Congress in Berlin in 1910 he was one of the two General Secretaries, who were untiring in their efforts to make the Congress a success. He had made numerous contributions on subjects having a relation with mental and nervous diseases to the *Archiv für Psychiatrie und Nervenkrankheiten*, the *Charité-Annalen*, the *Neurologisches Centralblatt* and the *Zeitschrift für Psychiatrie*. Professor Dr. Friedlander was Director of the Hohe Mark Klinik (private) for Nervous and Mental Cases. He was formerly Assistant Physician to Professor Binswanger's Klinik in Jena, and Assistant Physician to the Frankfort Asylum. In 1910 he was accorded the style of Professor. He had made numerous contributions to medical literature, namely in the *Neurologisches Centralblatt*, the *Monatschrift für Psychiatrie und Neurologie*, and also had written monographs on subjects connected with insanity. He, Dr. Percy Smith, had in his possession a list of communications made from him also, but perhaps he would not be asked to read it. Dr. Wilhelm Falkenberg had been connected with the care of the insane since 1892, and since 1903 he had been Oberarzt of the Herzeberge Asylum, Berlin, under the Directorship of Professor Moeli. He had made many contributions to medical literature in the *Zeitschrift für Psychiatrie*, the *Archiv. für Psychiatrie*, the *Psych. Neurolog. Wochenschrift*, *Virchow's Archiv*, and to the Congress für Innere Medizin, 1891. He acted with Professor Boedeker as Secretary to the Congress on the care of the Insane in Berlin, in 1910, and contributed greatly to its success.

The three gentlemen were unanimously elected.

THANKS TO THE RETIRING PRESIDENT.

Dr. HETHERINGTON proposed a vote of thanks to the President and other officers in the following words: Before you leave the chair, sir, I have been asked to propose a vote of thanks to you and to the other officers—the Treasurer, the General Secretary, the Divisional Secretaries, the Registrar, the Editors, and the members of the Council. It does not require many words from me to say how much we are indebted to the President and the other officers for the manner in which they have discharged their duties. We are able to judge at the meetings of the immense amount of work which they have to do. When we look at the amount of work which was got through this morning, the number of reports which were brought up, all of which were passed satisfactorily before adjourning, you will agree that very few words are needed to express how much we are indebted to them. We all feel it, and we thank them. I wish the motion had fallen into better hands, but I have the greatest pleasure in proposing the vote of thanks.

Dr. NOLAN seconded with much pleasure.

The PRESIDENT said it now devolved upon him to make his expiring speech as President of the Association. The unwritten custom of the Association laid it down very wisely, that the President should perform that duty under the most dignified circumstances. In the first place he had to return thanks for the honour which he had briefly worn, and then he had to fulfil the universal law of being by making room gracefully for the new birth. It was right that the President should thank the officers and the permanent officials of the Association for guiding him over many difficulties that were new to him during his term of office; but it was another thing that he should be called upon to return thanks in the name of the permanent officials to the Association for the Association's confidence in them. He conceived that such a custom had only arisen in order to enable the President to retire as quietly as possible under a cloud of words. They thanked Dr. Hetherington very much for the kind way in which he proposed the vote of thanks, and they highly appreciated the way in which the meeting had received it. It could scarcely be possible that anybody—certainly not himself—could speak too highly of the way in which the permanent officials—the Secretary and the Treasurer—of the Association performed their duties. Dr. Newington was the father and the husband of the Association, in so far as he provided their means of existence and was the conservator of those means. Further, he was the good personal friend and confidant of each one of the members. They all knew his knowledge, his zeal, and the watchful jealousy which he exercised with regard to everything concerning the good name of the Association. When he said that Dr. Bond possessed the

secretarial mind in an unusual degree, and when he said in addition, that his incessant work, not to speak of the occasional worries, seemed to him more of a pleasure than anything else (Hear, hear), it by no means detracted from those ideal qualities of his, however far he, the speaker, might be from comprehending them. Without his ideal qualities the Association would be all the poorer, but for the possession of them in the person of Dr. Bond, the Association ought to be infinitely grateful. With regard to the Registrar, he might say that as the complicated duties of the educational system of the Association grew in complexity from year to year, the weight of the responsibilities which were thrown upon him increased correspondingly. But the Registrar had very broad shoulders with which to bear them, and for that they ought to be grateful. Then in regard to the Editors, the Association always had the best men, men who were willing to sacrifice their personal convenience and their time to take up the duties of the important Journal of the Association; for the Journal was the voice of the Association by which its deliberations were heard in the uttermost parts of the earth. So long as their ablest men were willing to come forward and guide it there was need for no fear in regard to its reputation and the ability with which it was conducted. At the same time, members would regret very much the retirement, on account of ill-health, of the senior editors, and the loss of the illustrious services of Dr. Rayner, and the literary ability of Dr. Urquhart. Yet that feeling was mingled with one of sympathy on account of the causes which had led to their retirement. The Association welcomed at the same time the accession of Dr. Chambers, Dr. Lord, and Dr. Bruce, as editors of the Journal, and they confided into their hands with unstinted confidence their reputation and their honour. Lastly, he came to himself. The Association called him out of official obscurity to take the chair, and as soon as he vacated it he would return again to that same obscurity from which he came. He had to thank the Association for the honour it had conferred upon him, and he wished to say that he vacated the chair with some reluctance, because he felt that, although he had done his best, with a little longer experience he believed he might have done a little better. The honour and the pleasure had all been his. The rough places had been made smooth for him, and for that, even more than for the honour, in the act of laying down his office, he thanked the Association most sincerely. (Applause.) He thought it was unnecessary that in a meeting of that Association in the capital of Ireland he should refer at any length to the qualifications of his successor. Members all knew him as an energetic member of the Association, and as an eminent and painstaking physician. Recently his fellow members and colleagues, with whom he acted for many years as secretary of the Irish division, acclaimed together with all of them his accession to a high official position, and in that position members looked forward to his promoting what they all had most at heart, the advancement of the care of the insane; in fact, they had full confidence that he would do so. Addressing Dr. Dawson he said: "Any words of mine are unnecessary. The members of this Association have unanimously asked you to become their President. Your Irish colleagues who know you best have unanimously requested that you should take this chair, and this expression of their confidence in you is much stronger than any words of mine can express. It is a strange thing that I, a Government official, should have the pleasure of installing you, a Government official, into this chair. Such a thing has never previously happened in the history of this Association, and I cannot help feeling that perhaps it is our mission, yours and mine, to be instrumental in breaking down old-world and out-worn traditions, and that it may be our purpose to unify the function of all of us who have the care of the insane, whether we be bureaucrats or ordinary citizens. Now, before I ask you to take the chair, I must invest you with this insignium of office. (Applause.) I now invite you to take the chair, in the full confidence that you will discharge the duties of it with dignity and to our entire satisfaction; and I only hope that your term of office may be as pleasant and as agreeable as mine has been." (Applause.)

Dr. Dawson then took the Chair.

PRESENTATION TO DR. COURTENAY.

The PRESIDENT said his first duty was in connection with a little ceremony which was not on the programme, namely, the presentation of a token of esteem from the

whole of the Lunacy Administration of Ireland to his predecessor in office, Dr. Courtenay. He would call upon the Secretaries to the Presentation Committee to read the letters which had been received, and the Address.

Dr. HETHERINGTON read letters of apology from several members who had assisted with the testimonial. He then read the terms of the Address, as follows:

"Address and presentation to Edward Maziere Courtenay, Esq., M.B., retired Inspector of Lunatic Asylums in Ireland: Dear Dr. Courtenay,—We, who are associated with the asylums for the care of the insane in this country, desire to express our very sincere regret at your retirement from the position of Inspector of Lunatic Asylums after such a long period of active work. We also wish to mark, in some way, however inadequate, our appreciation of the good done by you in the interests of the insane. We are all aware of the energy and ability you have brought to bear at every stage of your distinguished career as Assistant Medical Officer of the Derby County Asylum, as Resident Medical Officer of the Derby County Asylum, as Resident Medical Superintendent of the Limerick District Asylum, and as Inspector of Lunatic Asylums—on all points that would improve the lot of the mentally afflicted, and raise the standard of the asylum service. For the many years you acted so zealously as the Honorary Secretary of the Irish Division of the Medico-Psychological Association of Great Britain and Ireland, you gave an impetus to scientific work in the field of psychological medicine. We ask you to accept this Address and Casket as a token rather than as the measure of esteem and regard, and we trust that you may long be spared to enjoy the rest you have so well earned. We most heartily wish you and Mrs. Courtenay many happy years. Signed on behalf of the subscribers—T. W. S. Drapes, Chairman of Committee; J. O'C. Donelan, Honorary Treasurer; Charles E. Hetherington, M. J. Nolan, Secretaries."

The inscription on the casket ran as follows: "This casket and contents were presented to Edward Maziere Courtenay, Esq., late Inspector of Lunatic Asylums in Ireland, as a token of appreciation of his life-long devotion to the interests of the mentally afflicted. From the Irish Lunacy Service, July 13th, 1911."

The PRESIDENT, in making the presentation, said he had great pleasure in handing over the address and casket. It was singularly appropriate that he, as Dr. Courtenay's successor, should have that function to perform. He could only say he identified himself in the fullest way with the terms of the address. No one knew better than he did the loss which the lunacy administration of Ireland had sustained by Dr. Courtenay's retirement, and it would be his, Dr. Dawson's, endeavour to follow, however unworthily, in his steps. He had great pleasure, on behalf of the whole of the lunacy service of the country, to offer that token of their esteem and regard, wishing him, at the same time, health and happiness in the leisure which he had so well earned.

The presentation of the testimonial was greeted with enthusiasm.

Dr. COURTENAY, in acknowledging the gift, said it was impossible for him to make any adequate reply to the flattering terms of the address. He could not find words in which to express his obligation for the kindly wishes conveyed to him in that document, which were accentuated by the presence of his fellow-members there. To thank them sufficiently for their handsome and generous gifts was far beyond his power. Those who had passed their lives in the Irish Asylum Service, looking back on the various changes which had taken place, could at least comfort themselves with the assurance that not only the condition of the institutions themselves, but the standard of care and comfort of the mentally afflicted inmates, was now more in accordance with modern requirements. To the junior members of the staff they must look in the hope that their labours in the scientific and human treatment of the insane would be crowned with still further success. How far each could claim credit for his share in the progress which had already taken place it was not for themselves to decide. He could only say that he had worked to the best of his ability. But he felt that no efforts of his would have been of any avail if it had not been for the loyal co-operation, zeal, and sympathy of the Association in the amelioration of the lot of the insane patients under their care. He had grown old in the service; the best part of his life had been spent within asylum walls, and to the end of his existence the scenes of asylum life would be present to his mind. Everything, however, must come to an end, and he could leave official life happy in the thought that the burthen of office had fallen on such worthy shoulders as

those of his friends, Dr. Considine and Dr. Dawson. The death of his able and beloved colleague, Sir George O'Farrell, had brought with it a keen sense of personal loss to his numerous friends throughout the United Kingdom. During the greater part of his official life he devoted himself with keen sympathy and rare acumen to the interests of the mentally afflicted. Perhaps the greatest solace he had on retiring from the cares of office was the knowledge that, during the many years he served among his colleagues, their relations were always of the happiest kind, and, in saying farewell, he felt that he could look on each one of them, not merely as a co-worker in the past, but as a personal friend for the remainder of his days. (Applause.)

Dr. O'NEILL said that, as Dr. Courtenay's successor in Limerick, where that gentleman spent seventeen years of his life, it was his privilege to speak of his worth, ability and zeal, and, above all, of his conduct as an inspector of lunatics. During his twenty-one years service there was an entire absence of "red tape," and instead of this a helpful friendship which he showed to every member of asylum staffs in Ireland. As an assistant asylum officer Dr. Courtenay made his name in Derby, which was the means of his becoming transferred to Limerick. So far as Ireland was concerned, he went to Limerick unknown. But he was only a short time there before making his mark, and on his retirement he, Dr. O'Neill, had the pleasure of hearing a member of the Committee refer to Dr. Courtenay in the following terms: "That he found the asylum bricks and mortar, and he left it marble." As an inspector, Dr. Courtenay had discharged his duties with entire satisfaction to every one. It was an intense gratification to him to do anything he possibly could in connection with the insane and for the advancement of asylum staffs in general. Dr. Courtenay now retired with the goodwill and the best wishes of every member of the Medico-Psychological Association of Great Britain and Ireland; and he felt sure that he was only echoing the opinions of each individual member when he said that they hoped he would live long to enjoy health and prosperity and everything good in this world.

The PRESIDENT said he had next to announce the names of the winners of the Gaskell prize and gold medal. He was glad to say that the bad days when there were but few competitors for the Gaskell prize appeared to be over now. This year there were no less than four competitors for it, and they all attained a very high degree of merit. The prize and gold medal had been awarded to Dr. J. G. Porter Phillips, of Bethlem Royal Hospital, and a special prize and silver medal had been awarded to Dr. J. M. Moll, of Long-Grove Asylum. With regard to the Bronze medal of the Association, three papers were sent in, and they were all of a high degree of merit, two of them particularly so. In fact, although there was no doubt which was the best and the decision of the adjudicators was unanimous, still, the second ran the first extremely close. The Bronze medal was awarded to Dr. G. H. Garnett, of Murthly Asylum, for an essay on "The Deviation of Complement in Insanity." A second one would be awarded to Dr. William Boyd, of Derby, for an essay upon "The Cerebro-Spinal Fluid in Mental Diseases."

Before reading his Presidential Address, Dr. Dawson made the announcements concerning the non-scientific part of the programme.

PRESIDENTIAL ADDRESS.

The PRESIDENT then delivered his address, which was entitled "The Relation between the Geographical Distribution of Insanity and that of Certain Social and other Conditions in Ireland."

Dr. NOLAN said that he had been asked to express the thanks of the Association to the President for his address. When he reviewed the enormous field of investigation which Dr. Dawson had traversed he realised how hopeless it would be to say anything except in appreciation of the valuable analysis which he had made of Irish social conditions in regard to insanity. Having read up some of the subjects, he could only say it amazed him to find how accurately he had recorded the individual conditions, particularly his allusions to the county where he, Dr. Nolan, lived, where there was a relatively small amount of insanity. The President had not merely given an ephemeral address in carefully selected language which would be pleasant to listen to for the particular occasion only, but had pre-

sented a record which when published in the Journal would be most useful to members on the many occasions when it would be necessary to refer to the questions which he had so ably analysed. On his own part, and, he was sure, for all present, he thanked the President most sincerely for the labour he had undertaken in the matter.

Dr. T. W. McDOWALL seconded the vote of thanks with all his heart. He reminded members that though the President could be thanked for his address, it could not be discussed or criticised; and it was his intention to adhere to that useful rule. The address dealt with a subject which had been interesting alienists for a good many years. A few years ago, when he was in Dr. Millar's office at Warwick, he saw a useful map showing the statistics as to the prevalence of insanity in the county as a whole and in each of its component unions for the various years of the census. In the winter evenings at home, he, the speaker, had worked somewhat at the subject, and obtained some interesting results from it. He suggested to the gentlemen present who were superintendents of Irish asylums, that as the President had worked out the matter concerning the whole of Ireland, they should set themselves to study the statistics of their particular county. He was sure that from such work they would obtain some very interesting results. He knew that for Northumberland the results were very curious. He regretted to say it was one of the most drunken counties in England, and by statistics one would conclude it was the worst; yet the amount of insanity in that county was relatively very small; indeed, it was one of the most sane counties in England. The amount of serious crime in it was very small, as also was pauperism. There seemed to be some very special reasons for that, and he believed that the chief one was the fact that Northumberland was a very wealthy county. The agricultural labourers there received the best wages in England, and the miners received more money than they knew what to do with. The result was that they were comparatively very prosperous. He seconded with great pleasure the proposition that the warmest thanks of the Association be accorded to the President for his very interesting address.

The PRESIDENT thanked the proposer and seconder for their kind remarks, and the meeting for the cordial way in which it had passed the resolution.

Dr. W. GRAHAM (Belfast), "Psycho-therapy in Mental Disorders" (see p. 617).

The reading of the paper was followed by an animated and interesting discussion, which was taken part in by Dr. MARY MACKENZIE, Dr. BOND, Dr. J. O'C. DONELAN, Dr. E. MAPOTHER, Dr. HELEN BOYLE, Dr. T. W. McDOWALL, Dr. SOUTAR, Dr. NOLAN, and the PRESIDENT, and Dr. GRAHAM replied.

Dr. M. A. COLLINS (Ewell Colony), "Causes of Sudden Death in Epilepsy, and Some Points in the Treatment of Epilepsy" (see p. 635).

The paper was discussed by the PRESIDENT, Dr. SPENCE, Dr. BOWER, Dr. HAYES NEWINGTON, Dr. DIXON, Dr. LEEPER, Dr. DRAPES, Dr. NOLAN, Dr. BOND, Dr. FLETCHER BEACH, Dr. GREENE, Dr. O'NEILL, Dr. T. DONELAN and Professor BOLTON, and Dr. COLLINS replied.

SECOND DAY.

On Friday Dr. Dawson again took the chair, and the first paper read was that by Dr. DRAPES (Enniscorthy) on "The Personal Equation in Alienism" (see p. 598). Remarks upon it were made by Dr. MACPHERSON and the PRESIDENT, to which Dr. DRAPES replied.

Dr. R. R. LEEPER (St. Patrick's Hospital) read a contribution, entitled "Note on Hereditary Insanity from a Practical Standpoint" (see p. 628). Dr. MACPHERSON, Dr. FLETCHER BEACH, and the PRESIDENT discussed the papers and Dr. LEEPER replied.

Professor J. SHAW BOLTON (Wakefield) gave a lantern demonstration as a basis, of his communication on "Certain Observations on the Morbid Histology of General Paralysis." The PRESIDENT, Dr. DIXON, and Dr. HAYES NEWINGTON briefly discussed the paper, and Professor BOLTON replied.

Dr. COLIN McDOWALL (Cheddleton) and Dr. W. T. SEWELL (Newcastle) jointly contributed a paper, entitled "A Report upon the Bacteriological Investigation of the Blood in Fifty Cases of Insanity" (see p. 661). The paper was discussed

by Professor BOLTON, Dr. STODDART, Dr. HELEN BOYLE and the PRESIDENT, and Dr. McDOWALL replied.

Dr. EDWARD MAPOTHER (Long-Grove) submitted a paper on "Mental Symptoms in Association with Choreiform Disorders" (see p. 646). The PRESIDENT, Dr. BOND, Dr. FLETCHER BEACH, Dr. DIXON, and Dr. STODDART joined in the discussion, to which the author replied.

RESOLUTION OF THANKS.

Dr. HAYES NEWINGTON said it would not be right, after such a very happy and hospitable meeting, to separate, as an Association, without acknowledging their great indebtedness to all those who had worked together to make it a successful gathering. First, they would thank the Royal College of Physicians, the possessors of the beautiful house in which the meetings were being held. They not only lent that hall, but also another room, in which the meetings were held on Wednesday. The sittings had been long, and members had done their best, by a proper use of the building, to repay its kindly loan. With regard to the College of Surgeons, it had done for the body what the College of Physicians had done for the mind. And he asked the President to convey the Association's thanks to the musicians, with the definite opinion that they were very excellent musicians. As an Association, they had had plentiful opportunity of hearing the best London male quartettes—there was a very perfect quartette in Leeds, the home of such singing in Yorkshire—and last year good music in Edinburgh, but he thought it could be said that Dublin came up to the very best they had heard, if it did not excel it. Thanks were also due to the Council of the Zoological Society for the kind grant of its grounds for the garden party, and to the Primate for his kindly invitation to the members to visit him at Armagh Palace. The Association also wished to thank Dr. Kirkpatrick for kindly arranging the Museum, which many visited; also those who lent motor cars. But one item was omitted from his list, namely, the ladies who had done so much to make the meeting a pleasant one. Several members were accompanied by their female relatives, whom they would not have known what to do with during the meetings had it not been for the ladies. In this connection, Mrs. Dawson, Mrs. Donelan, Mrs. Eustace, and Mrs. Leeper had specially to be thanked. And he would not like to close without saying a word about the Lord Lieutenant. Dr. Dawson thanked him officially at the dinner, and he (the speaker) thought they might personally express their great appreciation of what his Excellency did for the Association on the previous night. It was rare for such an Association to have the great distinction of receiving such a guest. But his Lordship went beyond that. His personal kindness and his *bonhomie*, and the manner in which he entered into the jollity of the evening, enhanced their pleasure. If there should be an opportunity, he would like Dr. Dawson unofficially to thank the Lord Lieutenant for his kindness. Still another name required to be mentioned, that of the President, Dr. Dawson, to whom the Association could not express too highly its thankfulness for all the trouble he had taken to render the meeting a happy one. It was one of the best meetings which the Association had ever held. He moved formally that a vote of thanks be conveyed to the various people named.

Dr. JOHN MACPHERSON seconded the vote with much pleasure, because the meeting had been a particularly successful one, and he was convinced that its success depended largely on the good offices of those whom Dr. Newington had included in the vote.

The PRESIDENT thanked the members on his own behalf, and assured them that it was a great pleasure to have the meeting held in Dublin.

THE ANNUAL DINNER.

The Annual Dinner was held on Thursday, July 13th, at the Royal College of Surgeons. The chair was occupied by the President, Dr. Dawson, and on his right was His Excellency the Lord Lieutenant of Ireland, The Right Hon. the Earl of Aberdeen, K.P. The guests included also The Right Hon. the Under

Secretary, The Hon. the Recorder of Dublin, The President of the Royal College of Physicians of Ireland, The President of the Royal College of Surgeons of Ireland, The Vice-Chancellor of the National University of Ireland, The Provost of Trinity College, The Most Rev. the Bishop of Meath, The Right Rev. the Bishop of Clogher, The Most Rev. the Bishop of Canea, The Registrar in Lunacy, The Registrar-General for Ireland, The Chairman of the Prisons Board, Dr. T. J. Considine, Surgeon-General G. Bourke, C.B., The Chief Inspector of Reformatory and Industrial Schools, The Aide-de-Camp in Waiting Viceregal Lodge, The Private Secretary Viceregal Lodge, Drs. J. Magee Finny, Walter G. Smith, A. C. O'Sullivan, J. Craig, Sir John Lentaigne, Sir John W. Moore, Drs. T. P. C. Kirkpatrick and A. R. Parsons, Rev. R. A. Oulton, Dr. W. S. Haughton, Messrs. R. G. Matthews, D. L. Rogers, F. G. Hicks, F.R.I.B.A., Wesley Guard, Captain Grimbley.

THE TOASTS.

THE KING.

This was proposed by the PRESIDENT. He said the toast of the King required no speech to recommend it—less than ever now, when His Majesty had further endeared himself to their hearts by his recent visit to Ireland.

The toast was enthusiastically pledged, the National Anthem being finely sung by Mr. D. L. Rogers.

THE QUEEN AND THE REST OF THE ROYAL FAMILY.

The PRESIDENT, in proposing this toast, said it was unnecessary to surround such a popular toast with many words. He would merely say that her Majesty's interest in all that pertained to the health of the people was so well known that it made the toast particularly appropriate at that gathering. During her visit to Ireland she had again shown that interest, for on the first day of her arrival she received the Jubilee nurses from all parts of Ireland at the Viceregal Lodge. He had it on the best authority that they looked uncommonly well. (Hear, hear.) Her Majesty also visited the Coombe Hospital in Dublin, and, with his Majesty, was present at the opening of the Tuberculosis Dispensary. Those were only additional instances which showed the interest which her Majesty, in common with the members of her Royal House, always took in medical matters, and in everything for the welfare of the people. He submitted to the company the toast of the Queen and the other Members of the Royal Family.

This toast was also very heartily pledged.

THE LORD LIEUTENANT OF IRELAND.

Dr. JOHN MACPHERSON said he could imagine no reason why he should have been assigned the honour of proposing that very important toast, unless it were that he was a Scotsman. To a Scotsman it would be a much easier and more familiar task to propose the health of the Earl of Aberdeen than to propose the health of the Lord Lieutenant of Ireland. Not that because Scotsmen were ignorant of the high position which his Excellency occupied, and not that Scotsmen were indifferent to the course of Irish politics. With all the will in the world to do so, they were not allowed, for long, to forget them. (Laughter.) At the same time, as a Scotsman he was not forgetful of the great debt of obligation under which Scotland lay to Ireland. In the first place, Ireland gave to them their name, for it was a hardy band of Irish colonists, the Scots of Antrim, who, towards the end of the fifth century, landed upon Scottish shores and wrested Argyll from the Pictish power. Three centuries later the Scots gave them the first King of Scotland, from which time the country had been known by its present name. In the next place, the inhabitants of Ireland gave to the Scots a language which was euphonious and expressive, but which, he was sorry to say, was fast disappearing. Finally, they sent them St. Columba, the greatest of all missionaries. Those Scotsmen who paused to think about those things could be neither

forgetful nor ungrateful. But it must not be supposed that the Scottish nation was over-weighted by a sense of obligation to the country which gave them these benefits. It must be remembered that Scotland was a very small nation, a comparatively insignificant one, and that they were constantly misrepresented to the extent that they were judged rather by the defects of their qualities than by the qualities themselves. Hence it came about that they had to such a large extent developed the saving graces of humility and humour (Laughter), hence it was that they had come to place a higher value upon personal worth than upon worldly possessions. He assured the company that there was nothing which Scotsmen set a higher store by than their worthy citizens, and among their worthy citizens the Earl of Aberdeen was one of the worthiest. (Applause.) His Lordship represented a very ancient Scottish house, which, in the public eye, had come to be identified with those qualities of character and of goodness which commanded universal respect. Whenever there was a movement in the direction of the promotion of social good or the extension of liberty and justice, the Scottish people had come to expect, as a matter of course, that an Aberdeen would be associated with that movement. (Applause.) A very great and celebrated Lord Lieutenant of Ireland, Lord Chesterfield, said that he would rather be an Irish Lord Lieutenant than go down to posterity as the Lord Lieutenant of Ireland, a distinction which was pregnant with significance. He thought he might claim on behalf of Scotland that in lending his Lordship to the Irish people for the brief term of his high office, Scotsmen had been lending them, not a Lord Lieutenant of Ireland, but an Irish Lord Lieutenant. He might also say that in lending him to the Irish people they were in some measure paying an instalment of the great debt which Scotland owed to the Irish nation. Members of the Association greatly appreciated the honour which His Excellency had done them in gracing their annual dinner with his viceregal presence; and in proof of their cordial welcome to him he asked the company to drink Lord Aberdeen's health with enthusiasm. (Cheers.)

The toast was very heartily pledged.

The LORD LIEUTENANT, in responding to the toast, said he supposed his hearers regarded it as a very discreet as well as a very kindly action on the part of the President that he entrusted the toast to a brother Scot, so that he might be sure that the speaker would make the best possible case, at any rate as regarded the personal side of the proposition, which had been placed before the gathering, and which they had so genially and so kindly accepted. In reference to the official aspect, the representative of the Sovereign, whoever he might be, was very sure of a cordial and genial greeting from such an audience as that, and he was sure their visiting friends would not find fault with them in Dublin if they were unable, as yet, to divest themselves of feelings of what was more than loyalty, feelings of delight and pleasurable excitement which had been evoked by that memorable visit of King George and Queen Mary, which had been the occasion of a magnificent burst of spontaneous enthusiasm on the part of all. (Cheers.) Their friends would also remember that those feelings had been revived and confirmed by the missive published that morning in the form of a letter from the King, in which, with unreserved cordiality combined with dignified expression, he had given utterance to his own feeling and that of the Queen regarding that delightful manifestation. And if anything were needed further to emphasise his Majesty's appreciation of the unrestrained cordiality of his Irish people, it had been found in a further telegram which, he understood, was being published in the evening papers, in which the King alluded to the cheers that remained ringing in his ears, even when he had got as far as Holyhead. (Cheers.) He was sure none of them would ever forget that visit, and they would perhaps have good reason to be reminded of it by another visit before long. This day would be a memorable one also, not only in the history of the country, but also in that of the Royal Family, because the Prince of Wales was to be invested in that Principality with which he was so historically connected. And his Excellency could not help thinking, during the lusty singing of "God Save the King," that they were also mentally singing the sentiment—

"Among our ancient mountains and from our lovely vales,

Oh let the prayer be echoed, God bless the Prince of Wales." (Applause.)

He was sure that all present had been looking forward to that occasion; for his own part, ever since entering the room he had experienced nothing but pleasurable

sensations. (Applause.) In such a company it was quite unnecessary for him to dwell upon the far-reaching importance of the work of the Medico-Psychological Association, from both the scientific and the humanitarian points of view. The mere thought of those persons who, in the mysterious ordering of Providence, suffered the terrible affliction of mental disease, was enough to appeal with pathetic force to one's sympathies, and to stimulate a strong desire that those sufferers, unable to speak or act intelligently for themselves, should be treated with all possible skill and attention. (Applause.) One had to face the fact that lunacy had been on the increase in the British Isles. As regarded Ireland he found from statistics that in five decades, *i.e.*, since 1861, the number of lunatics had increased from 14,000 to over 25,000; or in relation to population, from 1 in 441 to 1 in 178. Of course there were concurrent considerations to be taken into account. All were aware of what a serious influence emigration had; the departure of so many of the youngest and strongest in the country had an artificial effect upon such returns as those of lunacy. But in whatever way the figures were regarded they were sufficiently serious and portentous. Still, it was to be hoped that the gravity of the facts would only tend to stimulate the zeal and resources of those who had been qualifying themselves to deal with that great problem, and certainly there had been a great advance in their methods of treatment. Perhaps, especially after the speech of his fellow-countryman, he might be allowed to allude to the prominent part which Scotland—in other words Scottish experts—had taken in the matter (Cheers) by such methods as open-air treatment, increased freedom, and so forth. In those questions he thought it could justly be claimed that Scotland had taken the lead. But it was necessary for him to be careful. He noticed how his brother Scot alluded to the qualities which Scotsmen ventured to claim as national characteristics—humility and humour. It was most extraordinary that people of other countries never seemed to have detected those qualities. (Laughter.) He had heard of a Scotsman who was speaking somewhat complacently about his nationality—it was to be hoped the occasion was St. Andrew's Day, for on that day Scotsmen did relax from their usual modesty—and an Englishman said, "To hear you talk one would think there was no limit to your claims; you will next assume that Shakespeare was a Scotsman." "Well," answered the Scotsman, "the ability of the man would justify the supposition." (Cheers and laughter.) At any rate, it was to be hoped that in scientific departments Scotland would not be found to be lacking, especially in matters medical. By a happy coincidence it was found that the Chairman of the evening, the present President of the Association, had recently been appointed as an Inspector of Lunacy in Ireland. (Cheers.) Well assured were they that Dr. Dawson and his colleague Dr. Considine would worthily follow the men of light and leading whose successors they were. He, of course, alluded to the late Sir George O'Farrell, a man greatly esteemed, and their friend Dr. Courtenay, who had retired from active service, whose great capacity, industry and conscientiousness were known to them all. (Cheers.) Dr. Dawson's Presidential Address delivered that day indicated the spirit in which he had entered on his new duties. It would be perceived that His Excellency took it for granted that the office of Inspector of Lunatics was to be regarded as something much more important and comprehensive than might be implied by the mere term "Inspectorship"; it was much more far-reaching than the corresponding office in some other departments of affairs. Rather it was expected of such a functionary that he should be ever on the alert to encourage research, and to utilise his experience in doing all that was possible to promote the scientific and humane treatment of the insane. (Applause.) All would wish their friends the Inspectors "God speed" in their work, and he felt sure they would have the hearty support of those who were able to accord it to them. The fact that that important gathering of the Medico-Psychological Association was being held in Dublin recalled to mind that when it last met in that City it was under the presidency of the late Dr. Connolly Norman. (Applause.) Dr. Norman, indeed, made his mark. His Excellency had the privilege of assisting at the dedication of a Memorial Tablet in that notable building, St. Patrick's Cathedral, and that occasion drew together a number of friends who gladly, out, in a sense, sorrowfully, took the opportunity of expressing their feelings of respect, appreciation and affection for his memory. Well, men of mark and leading passed away, and others took their places. There was good

reason to look forward with hope and confidence. The present position in regard to insanity was one which gave occasion for serious reflection, but it must be believed that fresh methods of earnest research would, with the Divine blessing, tend steadily and surely towards effecting the desired result. Something of the same sort was seen in another direction, where strenuous efforts in the matter of health had been put forward. He was alluding to consumption. Work in that connection had already made its mark; but insanity was a more difficult and delicate matter; all the more on that account should effort be recognised and everything possible done to encourage those who were devoting themselves to the subject. It was very gratifying to him to see so many men distinguished in that all-important department of science present that evening; and he hoped their visit to Dublin would be a pleasant memory. His Excellency, after giving an instance of witty repartee on the part of a Dublin jarvey, said he felt very grateful for the speech of Dr. Macpherson, and proud at being the guest of the Association. He tendered his cordial wishes for the Society's continued success.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE VICE-CHANCELLOR OF THE NATIONAL UNIVERSITY OF IRELAND (Sir CHRISTOPHER NIXON) said he felt it a special honour to be asked to propose this toast. He referred to the various objects and activities of the Association, and said that what concerned him specially were its efforts to develop the teaching of mental diseases. In relation to that subject, he would specially refer to what the Association had effected by its influence. It had caused the examining boards to set special questions in reference to mental diseases at the examination for the final degrees or diplomas of the universities and the various licensing bodies. He did not think they, of the universities, had got far enough in that direction. Still, he claimed for the National university of Ireland, which he represented there that evening, that at all events it had established a diploma in connection with mental diseases, a diploma which, like the Diploma in Public Health and that in Tropical Medicine, was given only to practitioners on the Register. But he did not think that such really went far enough. We were living in an age of specialism; there was specialism in connection with almost every organ in the body. It was stated by an old colleague of his, a surgeon, that the development of specialism had gone so far that the only part of the human body that soon would be open to the ordinary surgeon was the umbilicus. (Laughter.) But he was not sure that this condition of specialism had been sufficiently developed in connection with mental diseases. Every qualified practitioner assumed that he was as competent to give his opinion in connection with the responsibility or irresponsibility of those who were insane, the testamentary capacity of the individual, and the other various problems resulting from nervous and mental diseases, as the most expert physician. He thought it was quite time that the public should be aroused to its interests in connection with that particular specialism of mental disease. That was why he was very strongly of opinion that the University which he represented did not go far enough in that direction. He thought that when there was an order of men who devoted themselves exclusively to affections of the most obscure character in connection with life and the mental condition of man, there ought to be more than a mere diploma; the speciality ought to try and develop the highest class of intellect in the country in connection with mental disorders; and one could only do that in a university by giving something better than a mere diploma. What he would suggest was that there should most certainly be given a B.Sc. for knowledge of diseases of the nervous system in connection with insanity. (Applause.) He could assure those present that, as far as he had any influence in the National University of Ireland, in order to promote the interests of that body—and those interests were commensurate with the interest of the public at large—he would do it. (Cheers.) There was the greatest promise in the future of what the profession could do. In the report which had been furnished in connection with the Commission on the Feeble-Minded there were extremely grave and important proposals, which would largely influence the conditions of the insane, the feeble-minded, and the epileptic in this country. He would ask any members of the profession, or any others who were present who happened to be in London,

to pay a visit to the Darenth Asylum, where they would see the most gratifying results of the treatment adopted there. It would come to be a question of the future as to whether it would be possible to answer Macbeth where he said: "Canst thou not minister to a mind diseas'd; pluck from the memory a rooted sorrow; raze out the written troubles of the brain?" That was really the question that the Association had to consider, whether it would discover that sweet oblivious antidote which would help to cure the terrible infliction of mental disorder which was so prevalent in this country. (Applause.)

The PRESIDENT, in replying to the toast, said that he had pleasure on behalf of the Medico-Psychological Association and on his own behalf in thanking the gathering most heartily for the way in which the health of their old Association had been drunk. It was just three score years and ten, a ripe old age, since the Association started, and it was now a great deal more lively than seventy years ago. As had already been said by the proposer of the toast, it had urged the establishment of special diplomas in the universities in the subject of psychological medicine. (Applause.) It was a great satisfaction to hear the Vice-Chancellor of the National University say that he might be confidently reckoned upon to support that in the University with which he was connected. (Applause.) Four universities across the Channel had promised to establish diplomas in psychological medicine, and he hoped that at no distant date there would be no such thing as a university or qualifying body in which such a diploma would not be granted for a proper course of training in that important subject. He had noticed that when people were talking with specialists in psychological medicine, and when the interlocutor happened to realise with whom he was speaking, he was apt to become rather uneasy. He did not know whether it was that everyone felt there was, somewhere or other, a slight flaw in his brain which the perspicacious eye of the professional psychologist might spy out, and certify him incontinently and lock him up. But he had not noticed any such uneasiness on the present occasion, and members were very glad to recognise the freedom and the kindly good fellowship which had prevailed throughout the dinner. (Applause.) This was the last opportunity which he would have of welcoming the visitors from across the Channel to Dublin, and telling them how extremely happy it made the Irish members to see them there. They had done their best to make things pleasant for the visitors, and he hoped the effort had not been without success. (Applause.) His Excellency having told an anecdote about the Dublin jarvies, he might be allowed himself to say he hoped the experience of the visitors would not be that of a gentlemen of whom he knew. He and a friend of his happened to be staying in Dublin, but for only a short time, and they wanted to see as much as possible in that time. They found a jarvey and asked him if he could drive them round the Park and to a number of other places in the course of half an hour. The driver looked at them in a disgusted way and replied, "Drive ye round the Park? begorra I'll drive ye out of your mind in half an hour." It would be a shocking thing if the gentlemen who were engaged in trying to cure other people's minds were to be driven out of their own by the Dublin jarvies. But it was all very well to talk in a light and jocular way of mental trouble and the work in which members of the Association were engaged. That work, however, was no joke, but very solemn, very real, and very important. It was not on such occasions as the present, when they allowed themselves to relax, when that one of the objects of the Association which was pursued was the promotion of good fellowship among the members, that people must judge of them. Asylum physicians had onerous and monotonous duties to perform from day to day, and the routine often became very dreary, while at the same time they must always be in a state of tension; always on the watch, because if their attention were allowed to relax, even for a short time, some terrible result might follow. He used often to feel, when he was in charge of such an institution, that he was living on a volcano all the time, and that one never knew what would happen from one moment to the next. The work required all the support and all the sympathy which the physician could draw from his friends, in the circumstances in which he was placed, to enable him to carry it on as it should be carried on. They would all go back to their varied duties—superintendents, assistant medical officers, Commissioners in Lunacy—heartened and strengthened by the knowledge that they had had evidence that evening not only of the support of their other medical brethren, but of the support of laymen of various degrees who were interested in and knew the work; and particularly

in Ireland they valued the support and sympathy which His Excellency the Lord Lieutenant had expressed. (Applause.) He concluded by once more thanking the company most heartily both on his own behalf and that of the Association.

THE VISITORS.

Dr. DRAPES, in proposing the toast, said that to the guests of the evening members of the Association extended their hearty welcome. With His Excellency was the Under-Secretary, on whose shoulders, which were very broad ones, there devolved a vast volume of work and responsibility. There was also present the Recorder of Dublin, the Registrar-General, and other prominent officials, including the Chairman of the Prisons Board. In the presence of such a company it was necessary to be very careful about one's demeanour and decorum. Dr. Considine was also present, and the Association had a great interest in him, for he was one of the new inspectors. The Church had sent three of its dignitaries—the Bishop of Canea, the Bishop of Meath, and the Bishop of Clogher. The Army was represented by a Surgeon-General and the Aide-de-Camp to the Viceroy. Medicine was represented by the President of the Royal College of Physicians and the President of the Royal College of Surgeons. The former was one of his old friends and teachers, and with his name he had to associate that of Dr. Finny and Dr. Walter Smith. The Church, the Army, Physic, Law were all represented at those tables. Time was when the relations between the medical profession and the other professions were not of the happiest, and long ago medical men were not sufficiently appreciative of the ideas of churchmen, but there was now a more cordial feeling between the members of the professions. The churchman respected and valued the medical man as a co-worker; medical men esteemed churchmen because often when their skill failed the clergyman came in and brought relief and solace. Medicine and law were for a long time in a more or less antagonistic position to each other. There was a time when a professor described the contest between a K.C. and a medical witness as something like what took place when a terrier caught a rat. At the end of the interview there was not much left of the rat, and at the corresponding interview there was not much left of the medical practitioner. Since then he believed that law and medicine had been approximating nearer to each other, and they were likely in the future to blend more in feeling, which would be to the advantage of both. The presence of such men was an indication not only of their good-will towards the Association, but of their sympathy with its objects. Two things more than anything else bound medical men together, namely, science and philanthropy; love of knowledge and the relief of suffering. Those aims were the aims of the Medico-Psychological Association. From its inception up till now it had laboured to procure knowledge concerning that wonderful organ the human brain, in order to have a better understanding of the insane. They had the sympathy of their guests, and to them they extended a hearty Irish welcome.

The BISHOP OF CANEA, the PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS, and the PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS briefly responded.

THE PRESIDENT OF THE ASSOCIATION.

The LORD LIEUTENANT, in proposing the health of Dr. Dawson, said he ventured to do so because he felt they would not be willing to separate without expressing strongly their sentiment of appreciation, and not only appreciation, but congratulation, to the President of the Association. (Applause.) He expressed congratulation more especially in reference to the success and the most pleasant character of that gathering, which was not brought about without careful forethought and arrangement. There had also been the great assistance of the delightful music which had been rendered that evening by the quartette, ably supported by his friend the Rev. Mr. Oulton at the piano. He asked the company to indicate in no uncertain way their appreciation of Dr. Dawson, and he wished him prosperity and all good things.

The company enthusiastically honoured the toast, His Excellency leading the singing of "For He's a Jolly Good Fellow."

Dr. DAWSON, who was received with cheers, said that, in thanking them all, he desired to take the occasion, in connection with what had been mentioned earlier in the evening, to record his personal gratitude to His Excellency's native country for the obligation which he would always feel under to it. It was under a son of that country, his old chief Dr. Clouston, whom he was extremely sorry not to have amongst them that day, that he received his first lessons in the science and treatment of mental diseases, and the even more valuable lessons derived from the study of his character. He had endeavoured—and he hoped would always do so—to be influenced by a consideration of that transparent honesty, that devotion to duty, and that single-minded regard for the welfare of his patients and the progress of science which distinguished Dr. Clouston. (Cheers.) For this, even if for nothing else, he felt under a lasting debt to Scotland. He would like, in conclusion, to associate himself with what His Excellency said concerning the music of the evening. He had himself the honour of being a brother "Stroller," though a humble non-performing member, but he had no doubt that even were it not so, the singers would have been good enough to come and add to their enjoyment as they had done that evening. He was sure the company would allow him to convey to them their hearty appreciation and thanks for the pleasure they had given. (Cheers.) He would also like to thank others who had so ably supported him throughout the visit of the Association, especially Dr. Bond, Dr. Leeper, Dr. Newington and the rest who had laboured indefatigably to make the meeting a success. In conclusion he expressed his warmest thanks to His Excellency for the terms in which his health had been proposed, and to all those present for the hearty manner in which they had honoured the toast. (Cheers.)

OBITUARY

DR. GEORGE FIELDING BLANDFORD.

Dr. BLANDFORD, whose death occurred at Tunbridge Wells in August last, had been so long an active member of the Medico-Psychological Association that he has been connected with many of the most important phases of its development.

Elected a member in 1857, there remains only one living member (Dr. Huertley Sankey) who is his senior. He took an active part in the work of the Association from the earliest days of his membership.

Some of his earliest literary work appeared in the *Journal of Mental Science*, of which he later on became editor.

Becoming President in 1877, his presidential address was on the subject of "Lunacy Legislation," in which he described the evolution of the lunacy laws from 1845. His choice of subject was probably affected by the fact that a special committee of the Houses of Parliament was at that time considering the Lunacy Laws as related to the liberty of the subject, but it was an evidence of the strong interest that he then and always had in the general welfare of the insane.

In the following year he compiled an index of the first twenty-four volumes of this journal. Until quite recently he has taken an active interest in the affairs of the Association, especially in the legislative aspect, his name remaining on the Parliamentary Committee at the date of his death.

The obvious services thus recorded are but a small proportion of the work that he has actually done, and form but a small part of the debt the Association owes to his advice, judgment and assistance by personal influence.

Dr. Blandford's memory must always be connected with the history of the Medico-Psychological Association as one who largely helped during the fifty-four years of his membership to its successful establishment. He was a worthy contemporary of such men as Maudsley, Bucknill, Hack Tuke, Skae, and many other distinguished members.

Dr. Blandford was the only son of his father, George Blandford, who at the time of his birth (March 7th, 1829) was in medical practice at Hindon, in Wiltshire, removing later to Hadlow, in Kent, and later still to Rugby. He was educated at Tunbridge School (1840-41) and at Rugby (1841-48). W. H. Waddington,

afterwards Prime Minister of France and French Ambassador to England, entered in the same term at Rugby.

In 1848 he entered at Wadham College, Oxford, and took the degrees of B.A. in 1852 and of M.A. in 1857.

Dr. Blandford's physical education would appear to have been excellent. Riding was an exercise to which he was accustomed from his earliest years, thus accompanying his father on his professional rounds. He was a good cricketer, playing for his school and college eleven. He was also a footballer and an oarsman. Later on he was one of the earliest volunteers, belonging to the 2nd (South) Middlesex Regiment. The excellent health that he enjoyed throughout life was probably greatly ensured by the active habits of his early years.

In October, 1852, he entered as a student at St. George's Hospital, taking the diploma of the Society of Apothecaries in 1857 and the M.B. of Oxford. In 1858 he became a member of the College of Surgeons, and of the College of Physicians in 1860. He became M.D. of Oxford in 1867, and was elected a Fellow of the Royal College of Physicians in 1869.

His son, Mr. W. F. H. Blandford, furnishes an interesting description of his career as a specialist: "His connection with insanity with which he was associated throughout his professional career, was, I have heard him say, accidental, rather than the result of deliberate choice, and I believe he would have found a less restricted line of practice congenial." Certain it is that at an early period of his professional life he became closely associated with Dr. A. J. Sutherland, physician to St. Luke's Hospital, and used frequently to visit that hospital, where no doubt his early studies in insanity were made. Dr. Rawes, now medical superintendent of that hospital, writes that Dr. Blandford "was on friendly terms with Stevens, the then medical superintendent, for whom he sometimes took holiday duty," but it does not appear that he held any other official appointment there. In the minute book of the committee of St. Luke's Hospital for October, 1857, Dr. Blandford is described as "Acting Medical Superintendent, and showing his zeal by recommending improvements in the diet of patients." His name first appears in the *Medical Directory* in the year 1860, when his address was Blacklands House, Chelsea. His association at St. Luke's Hospital with Dr. Sutherland, who no doubt thus early detected the promise of eminence in his profession which his after career fulfilled, and saw that by his general culture and qualifications he was exceptionally fitted to deal with the insane of the private class, resulted in his appointment in 1859 as resident medical officer to Blackland's House, then one of the best known of the London private asylums for gentlemen, and owned by Dr. Sutherland. He also assisted Dr. Sutherland in visiting his asylum for ladies at Otto House, Hammersmith, which is still owned by members of the Sutherland family, with whom he was closely associated up to the time of his retirement in 1909, a period of over fifty years. In 1860, while resident at Blacklands House, he took the Membership of the College of Physicians. The appointment lasted till 1863, when he went into private consulting practice in Clarges Street.

On leaving Blacklands House he had become its visiting physician, and he continued to act in that capacity to Blacklands House and its successor, Newlands House, Tooting, and to Otto House, Hammersmith, until his retirement from practice in 1909. He was also for many years visiting physician to Featherstone Hall, Southall, and to Clarence Lodge, Clapham Park, both private asylums for ladies. From 1874 to 1895 he was the principal proprietor of, and visiting physician to, Munster House Asylum, Fulham. When, owing to the growth of London, the Asylum became unsuitable for this purpose, Dr. Blandford pulled down the building and converted the site into a building estate.

Dr. Blandford's literary career practically commenced with the publication of a course of lectures on insanity in the *Medical Times and Gazette* for 1866, which had been delivered in that year at St. George's Hospital for the first time. This lectureship he held for thirty-six years, entailing a close connection with the medical staff of the hospital during that period.

In 1867 he published in the *Journal of Mental Science* an article on Dr. Meschede's paper on "Paralytic Insanity and its Organic Nature," abridged from *Virchow's Archiv*, and contributed "Clinical Cases of Insanity" to the *St. George's Reports*.

In 1869 he contributed an article entitled "Insanity Without Delusions" to the

Journal of Mental Science. In this he expressed his preference for the title of his paper to the term "moral insanity." He contended that in both moral and impulsive insanity there was some disorder of the intellect.

Dr. Percy Smith has compiled the following *resumé* of his further medical work. Dr. Blandford's principal work, *Insanity and its Treatment*, was first published in Edinburgh by Oliver and Boyd in 1871, with a concurrent American edition. It was essentially a clinical and practical manual, and held the field for many years; it passed through four editions, the second, third, and fourth being published in 1877, 1884, and 1892. The third edition was translated into German. In this work Dr. Blandford made full use of his wide clinical experience in the treatment of the insane, the care of the individual patient, the symptoms of his disease, and the means of restoring him to health being emphasised much more than the classification of insanity.

In 1887 he attended the meeting of the International Medical Congress held at Washington, and gave one of the general addresses before the whole Congress on "The Treatment of Recent Cases of Insanity in Private and Asylums," the subject, as usual with him, being practical and clinical. This address had been prepared by him for the Section of Psychological Medicine, but he was specially asked to give it before the whole Congress.

To Dr. Hack Tuke's *Dictionary of Psychological Medicine*, published in 1892, he contributed the articles, "Prevention of Insanity" and "Prognosis." The former subject was also taken for his address as President of the Psychological Section of the British Medical Association in 1894. In 1895 he delivered before the Royal College of Physicians of London the Lumleian Lectures on the "Diagnosis, Prognosis, and Prophylaxis of Insanity," each of the three lectures covering one of the subjects. In 1897 he wrote the article on "Insanity," occupying 254 pages, in the *Twentieth Century Practice*. In it the whole subject is dealt with, the chapter on "Prevention of Insanity" being well worth careful study, and being full of practical suggestions as to the care and training of those belonging to neurotic or insane stocks. Referring to Pritchard's contrast between moral and intellectual insanity, his words were, "Morality is not a division of mind," and he dwelt upon the importance of conduct as the criterion in insanity. His view as to the presence of intellectual disorder in moral insanity is shown by the following extract:

"The loss of all prudence, judgment, and restraint implies the degradation of his intellectual as well as his emotional centres, and to say that his intellect is sound seems to be nothing else than a quibble about words."

In the third edition of *Quain's Dictionary of Medicine* (1902), the following articles were from the pen of Dr. Blandford: "General Considerations," "Imperative Ideas," "Impulsive Insanity," and "Moral Insanity."

Dr. Blandford served on the Council of the College of Physicians from 1887 to 1889, and took an active part in the After-care Association, on the Council of which he served most actively for many years, and remained a member at his decease. He was also President of the Society for the Relief of the Widows and Orphans of Medical Men at the date of his death.

His success as a consultant placed him in the front ranks of his specialty, a position that his robust health enabled him to retain until he was nearly eighty years of age. Even after his retirement from Wimpole Street to Tunbridge Wells, in 1909, he still occasionally enjoyed coming to town to see old patients, and to attend meetings of the bodies with which he had been so long associated. He retained to the last the clear unbiased judgment which had been his distinguishing characteristic.

His professional success was largely based on the above characteristics together with the habit of deliberate attention which enabled him to grasp the subject under consideration with admirable thoroughness. This calm deliberateness in forming and expressing his opinions not only commanded the confidence of his patients, but exercised a controlling influence on those who shared his counsel in public matters.

Thoughtful sympathy was another striking trait, which largely led to what Dr. Buzzard has described as an almost intuitive practicality in his recommendations for the care of his patients.

Dr. Blandford possessed a high appreciation of the honour of his profession, and

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of the speciality of which he was a member. His sense of professional duty in relation to Society gave him the courage on more than one occasion to risk possible public reproach rather than to shun what he considered to be his duty.

In his private life Dr. Blandford was interested both in literature and art. In his early life he contributed occasionally to the *Cornhill Magazine*.

He was a collector of books, bindings and prints, the latter especially relating to Old London. This latter task doubtlessly led to his contributing an interesting article on city life in 1800 in the *British Medical Journal* (for 1900), under the title of "A Century's Retrospect of Medicine."

Sketching in water colours was his chief relaxation in the latter part of his life.

He had been a member of the Western Friendly Club and of the Mayfair Medical Book Club. He was also President of the Graphic Society of St. George's Hospital. Since 1862 he had been a member of the Athenæum Club.

In June last a chill resulted in severe general rheumatism, which rendered him quite helpless, and was complicated later by broncho-pneumonia and heart failure. The week before his death he improved, and was able to leave his bed, but subsequently had further attacks of heart failure, the end coming rather suddenly and unexpectedly on August 18th.

He was buried on August 23rd at Tunbridge Wells. Among those attending his funeral were Dr. Hayes Newington and Dr. Percy Smith, representing the Medico-Psychological Association; Dr. Seymour Tuke, Lecturer on Psychological Medicine, St. George's Hospital, and Dr. Hind, Superintendent of Newlands House. The fact that his death occurred during the holiday season prevented the attendance of many members of the profession who would otherwise have wished to be present.

He married in 1864 Louisa, only daughter of the late Rev. George Holloway, who, with two sons and two daughters, survive to mourn the loss of—

"A soul, that could securely death defy,
And count it Nature's privilege, to die."

H. R.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

The following regulations were adopted by the Royal College of Physicians on July 27th, 1911 :

1. Any member of the College may ask permission to present himself for further examination in psychological medicine.
2. The further examination in psychological medicine shall be held on such dates as the Censors' Board may from time to time determine.
3. Candidates shall be examined in:
 - (1) Psychology and the study of conduct in relation to mental disorder.
 - (2) Psychological medicine and the jurisprudence of insanity.
4. Candidates shall be examined by written questions on each of the subjects mentioned above; the practical knowledge of the candidates shall be tested in an institution for the insane, and the candidates shall be examined *virâ voce* in all the subjects of the examination.
5. On the letters testimonial of every member who satisfies the examiners in psychological medicine, a statement to that effect shall be engrossed and signed by the examiners, accompanied by a certificate by the Registrar.

Form to be engrossed on the letters testimonial.

A.B. die mensis A.D.
in Medicinâ Psychologicâ examinatus satisfecit nobis Examinatoribus.

Ita testamur $\left\{ \begin{array}{c} \text{A.B.} \\ \text{C.D.} \end{array} \right\}$ Examinatores.

6. Every member who satisfies the examiners will be permitted to add to any mention or description of his membership words purporting that he obtained distinction in psychological medicine.

THE LIBRARY OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Library is open daily for reading, and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from the Lending Library belonging to that firm should any desired book not be in the Association's Library.

The following books have recently been added to the Library:

H. Ellis.—*The World of Dreams*.

White.—*Mental Mechanisms*.

Plaut.—*The Wassermann Reaction*.

Coriat.—*Abnormal Psychology*.

Members desiring to receive foreign journals under the Library scheme during 1912 are requested to send their names to the Hon. Sec. before December 1st, specifying the particular Journals which they wish to have sent to them. The journals subscribed to by the Library are as follows:

Journal of Abnormal Psychology.

Journal of Nervous and Mental Diseases.

American Journal of Insanity.

Journal de Psychologie normale et pathologique.

Zeitschrift f. d. gesamt. Neurologie u. Psychiatrie.

Members who are receiving these journals during the present year will continue to receive the same journals next year, unless they notify the Secretary that they desire to have their names removed from the list.

Application for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos St., Cavendish Sq., W. Other communications should be addressed to the undersigned at Long Grove Asylum, Epsom.

BERNARD HART,

Hon. Secretary, Library Committee.

NOTICES BY THE REGISTRAR.

EXAMINATION FOR THE GASKELL PRIZE.

The Gaskell Prize and Gold Medal were awarded to Dr. J. G. Porter Phillips, and a Special Prize to Dr. J. M. Moll; Dr. J. Maule Smith gained distinction.

EXAMINATION FOR THE CERTIFICATE OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The following candidates passed this examination: Drs. S. Bazalgette, J. M. Moll, J. G. Porter Phillips, J. F. Powell, and Hill Wilson White.

NURSING CERTIFICATE.

The next Preliminary Examination will be held on November 6th, 1911. The next Final Examination will be held on November 13th, 1911.

For further particulars apply to the Registrar, Dr. A. Miller, Hatton Asylum, Warwick.

NOTICES OF MEETINGS.

MEDICO-PSYCHOLOGICAL ASSOCIATION.

Quarterly Meeting.—The next meeting will be held at 11, Chandos Street, Cavendish Square, on Tuesday, November 21st, 1911.

South-Western Division.—The Autumn Meeting will be held, by the courtesy of Dr. Blachford, at the Bristol Asylum, Fishponds, on Friday, October 27th, 1911.

Northern and Midland Division.—The Autumn Meeting will be held, by the courtesy of Dr. Sankey, at Boreatton Park, Salop, on Thursday, October 19th, 1911.

Scottish Division.—The Autumn Meeting will be held on Friday, November 17th, 1911.

Irish Division.—The Autumn Meeting will be held on Thursday, November 2nd, 1911.

APPOINTMENTS.

Cormac, H. Dove, M.B., M.S., Madras, Senior Assistant Medical Officer, Cheshire County Asylum, Parkside.

Gilfillan, S. J., M.B., C.M.Edin., Medical Superintendent, Colney Hatch Asylum.

Martin, Mary E., L.R.C.P. & S.Edin., L.F.P.S.Glasg., L.S.A., Assistant Medical Officer, Bailbrook House, Bath.

Parkin, G. G., M.B., Ch.B.Vict., Second Assistant Medical Officer, Cheshire County Asylum, Parkside.

Petrie, Gavin E., M.B., Ch.B.Aberd., Third Assistant Medical Officer, Cheshire County Asylum, Parkside.

PHOTOGRAPHIC GROUP OF THE DUBLIN MEETING.

Photographic groups of members of the Association, taken at the garden party in the Zoological Gardens, may be had from Messrs. Werner and Son, 39, Grafton Street, Dublin. Price, in silver type, 6s. each.

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